

Southern Pacific Railroad Shasta Route
(California and Oregon Railroad)
From Roseville to Black Butte, California
Roseville
Placer County
California

HAER No.CA-220

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~~PHOTOGRAPHS~~

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

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HISTORIC AMERICAN ENGINEERING RECORD

SOUTHERN PACIFIC RAILROAD SHASTA ROUTE (California & Oregon Railroad)

HAER No. CA-220

Location:

From Roseville, Placer County, California to Black Butte, Siskiyou County, California, passing through Lincoln, Placer County; Sheridan, Placer County; Wheatland, Yuba County; Marysville, Yuba County; Live Oak, Sutter County; Gridley, Butte County; Biggs, Butte County; Richvale, Butte County; Durham, Butte County; Chico, Butte County; Nord, Butte County; Los Molinos, Tehama County; Tehama, Tehama County; Gerber, Tehama County; Red Bluff, Tehama County; Cottonwood, Shasta County; Anderson, Shasta County; Redding, Shasta County; Lakehead, Shasta County; Delta, Shasta County; Lamoine, Shasta County; Gibson, Shasta County; Sims, Shasta County; Dunsmuir, Siskiyou County; Mount Shasta, Siskiyou County; Black Butte, Siskiyou County.

NOTE: All UTM references are given for station locations, siding locations, principal grade crossings, or specifically indicated geological features.

UTM: 10-649278-4290542

Quad: Roseville, Calif., 7.5', 1967 (photorevised 1981)
(Roseville)

UTM: 10-648094-4305958

Quad: Lincoln, Calif., 7.5', 1953 (photorevised 1981)
(Lincoln)

UTM: 10-640707-4315620

Quad: Sheridan, Calif., 7.5', 1953 (photorevised 1973)
(Sheridan)

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UTM: 10-636649-4318880
Quad: Wheatland, Calif., 7.5', 1947 (photorevised 1973)
(Wheatland)

UTM: 10-622422-4333326
Quad: Yuba City, Calif., 7.5', 1952 (photorevised 1973)
(Marysville)

UTM: 10-615559-4347786
Quad: Gridley, Calif., 7.5', 1952 (photorevised 1973)
(Live Oak)

UTM: 10-612531-4357817
Quad: Gridley, Calif., 7.5', 1952 (photorevised 1973)
(Gridley)

UTM: 10-610913-4363177
Quad: Biggs, Calif., 7.5', 1970
(Biggs)

UTM: 10-608200-4372143
Quad: Biggs, Calif., 7.5', 1970
(Richvale)

UTM: 10-603117-4388966
Quad: Chico, Calif., 7.5', 1948 (photorevised 1978)
(Durham)

UTM: 10-599002-4397453
Quad: Chico, Calif., 7.5', 1948 (photorevised 1978)
(Chico)

UTM: 10-589448-4403585
Quad: Nord, Calif., 7.5', 1951 (photorevised 1969)
(Nord)

UTM: 10-576850-4430299
Quad: Los Molinos, Calif., 7.5', 1952 (photorevised 1969,
photoinspected 1976)
(Los Molinos)

UTM: 10-574638-4431032
Quad: Los Molinos, Calif., 7.5', 1952 (photorevised 1969,
photoinspected 1976)
(Tehama)

UTM: 10-572362-4434084
Quad: Gerber, Calif., 7.5', 1950 (photorevised 1969,
photoinspected 1976)
(Gerber)

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UTM: 10-564838-4447491
Quad: Red Bluff East, Calif., 7.5', 1951 (photorevised 1969,
photoinspected 1976)
(Red Bluff)

UTM: 10-561286-4470233
Quad: Cottonwood, Calif., 7.5', 1965
(Cottonwood)

UTM: 10-559531-4477677
Quad: Cottonwood, Calif., 7.5', 1965
(Anderson)

UTM: 10-551440-4492538
Quad: Redding, Calif., 7.5', 1957 (photorevised 1969)
(Redding)

UTM: 10-552489-4528185
Quad: Lamoine, Calif., 7.5', Provisional Edition 1990
(Lakehead)

UTM: 10-548387-4532582
Quad: Lamoine, Calif., 7.5', Provisional Edition 1990
(Delta)

UTM: 10-547933-4335962
Quad: Lamoine, Calif., 7.5', Provisional Edition 1990
(Lamoine)

UTM: 10-549870-4540052
Quad: Chicken Hawk Hill, Calif., 7.5', Provisional Edition 1986
(Gibson)

UTM: 10-554118-4546438
Quad: Chicken Hawk Hill, Calif., 7.5', Provisional Edition 1986
(Sims)

UTM: 10-561252-4562276
Quad: Dunsmuir, Calif., 7.5', Provisional Edition 1986
(Dunsmuir)

UTM: 10-557502-4573421
Quad: City of Mount Shasta, Calif., 7.5', Provisional Edition 1986
(Mazama)

UTM: 10-553596-4582528
Quad: Hotlum, Calif., 7.5', Provisional Edition 1986
(Black Butte)

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Date of Construction: 1863-1887, 1901-1942.

Engineer: California & Oregon Railroad (1863-1867); Engineering Department, Central Pacific Railroad (1868-1880); Southern Pacific Railroad Engineering Department (1901-1942).

Present Owner: Union Pacific Railroad, 1416 Dodge Street, Omaha NE 68101

Present Use: Railroad.

Significance: The Southern Pacific Railroad Shasta Route between Roseville and Black Butte, California was one of the elements of the original Central Pacific Railroad. Begun in 1863 as the California & Oregon Railroad intended to join Marysville, California with Portland, Oregon, the line came under control of the Central Pacific by 1867. The Central Pacific finally completed the final link in the route in 1880. In the early years of the 20th century, major improvements were undertaken by railroad magnate E.H. Harriman to upgrade tracks, replace early bridges, and improve service. Related to these efforts was initiation of construction of the Natron Cutoff (HAER No. CA-217) between Black Butte, California and Natron, Oregon in 1905. The final major reconstruction on the Shasta Route occurred in 1938-42 when construction of Shasta Dam forced a major realignment between Redding and Lakehead. For the purpose of the current project, the Shasta Route was found likely to be eligible for the National Register of Historic Places at the state level of significance under Criterion A for its significance in engineering, transportation history, and the economic history of California and Oregon, and in the development of the West, and under criterion B for its association with E.H. Harriman. As contributors to the overall historic property, the route's Common Standard bridges over the Sacramento River were also found to meet criterion C, representing a type, period, and method of construction. The Shasta Route's period of significance is 1863 to 1945, from the beginning of construction through the conclusion of the railroad's achievements in World War II.

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I. DESCRIPTION

Presently owned and operated by the Union Pacific Railroad, the former Southern Pacific Railroad Shasta Route is a standard-gauge (four feet, eight and one-half inches between railheads) railroad extending between Roseville and Black Butte, California.

It is a single-track line with passing sidings, with shops, freight yards, locomotive servicing facilities, depots, and appurtenant structures, including bridges, culverts, and tunnels along the route. A comprehensive inventory of all contributive elements is beyond the scope of this documentation, which is aimed at recording certain of the bridges. The Shasta Route has changed little in the nearly 120 years since its completion. Routine rail and tie replacements have taken place, but in general the alignment, technology, and setting of the line remain virtually unchanged. A major realignment of a portion of the line between Redding and Lakehead due to the construction of Shasta Dam and inundation of the original alignment eliminated a number of sidings and bridges between the dam site and Lakehead, though a major stub of the original line remains below the dam between there and Redding. The route originally extended beyond Black Butte to cross the Siskiyou Mountains into Oregon, but completion of the Natron Cutoff in 1927 created the Cascade Route between Black Butte and Springfield, Oregon, and that portion of the old line between Black Butte and Springfield, Oregon reverted to secondary status and became part of the Oregon Division. Beyond the alignment and roadbed of the line, contributive elements of this property include: tunnels; rock sheds; truss, deck girder, steel trestle, timber pile trestle, and concrete bridges; single-lens "searchlight" type automatic block signals and signal bridges; depots, section houses, and other support structures; locomotive servicing facilities.

The present owner operates the railroad as a freight railroad, but AMTRAK provides passenger service over the line, with its *Coast Starlight* linking Los Angeles, California and Seattle, Washington.

II. HISTORY

Although railroads had considered lines to tap the Oregon territory as early as 1850, more than a decade would pass before efforts would begin in earnest. On April 6, 1863, the California legislature took the first step by granting a group of men the chance to prove that a railroad from California into Oregon would be practical and profitable. These men, about seventy strong, had formed an association to undertake a survey from Marysville--then California's third largest city--to Portland. The association anticipated an early connection with Central Pacific Railroad, giving them access to the transcontinental railroad. [The proposed connection was to be at Junction (today Roseville), south of Marysville, a point that the Central Pacific would not reach until April 26, 1864.]

With the California legislature in hand and awaiting the results of the survey, the association sent one of their number, Simon G. Elliot, north through the Sacramento Valley and into Oregon to persuade the citizens there to see the advantages of a California-Oregon railroad. Simon was a miner and surveyor and was the most vocal of the association, making him a logical choice to try to sell the idea and invite subscriptions for the effort. In April 1863 Elliot began his attempts to arouse interest for assistance with the preliminary survey work. The reaction of the citizens of Northern California was less than enthusiastic. North of the border it was a different story. The residents of the southern and inland Oregon towns were eager for improved transportation to both San Francisco and Portland. Proceeding to Portland, Elliot met with George H. Belden, Chief Clerk of

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the office of the Surveyor General of Oregon. As a result of the discussions, Belden agreed to work with Elliot and the association to undertake the necessary survey.

Returning to California, Elliot gathered a group of thirteen Marysville men to form a surveying team. They began their work in July 1863, following the Sacramento Valley north from Marysville through Oroville, Chico, Tehama, Red Bluff, Shasta and Yreka. In August Belden went to Eugene, Oregon whence he proceeded to survey south to meet the California team at Yreka. From Yreka, the two teams worked north through the rugged Siskiyou Mountains. It was October before they reached Jacksonville, Oregon. Work through the Siskiyou had slowed as the teams deliberated as to the best route through the mountains. Then at Jacksonville, in a dispute over who should lead the survey effort north to Portland, Belden and Elliot had a falling out that broke up the group and halted all work until spring of 1864. At that time Colonel Charles Barry, an original member of the Belden survey team, returned wounded from the Civil War and completed the survey into Portland to the Columbia River.

The California and Columbia River Railroad Company incorporated on October 13, 1863 at Jacksonville to carry on the Oregon end of the project with an eye toward gaining legislative assistance in that state. Barry, with the help of Joseph Gaston, a Jacksonville resident, campaigned the Oregon Legislature for state aid in 1865. When they met with no success, Barry withdrew from the effort and the company soon ceased to exist.

More successful were Elliot's California investors who had subscribed funds for the survey. They gathered at Marysville on June 1, 1863 to organize the California and Oregon Railroad Company. They worked with Congress during the 1863-1864 and 1864-1865 sessions to obtain land grants. Their incorporation of the California and Oregon on June 30, 1865 was timed to meet the provisions of the California Act of 1863 with regard to the needed land grants.

On the other end of the line as a representative of this group of Californians, Elliot filed in Salem, Oregon on July 13, 1865 to incorporate the Oregon and California Railroad Company, whose main office would be in Jacksonville. Later Congressional Acts never mentioned the Oregon and California, which never became an active organization. Another group would, however, use the railroad's name in the future.

During its session of 1866, Congress passed a land grant bill on July 25 to aid in the construction of the line from Portland to join the Central Pacific in California. The bill, passed largely through efforts of Oregon Senators J.W. Nesmith and G.H. Williams, Oregon Congressman J.R. McBride, and California Congressmen C. Cole and John Bidwell. Bidwell had more than a passing interest in the railroad: holder of a huge land grant in and around Chico, his property and interests would be served by the new iron road. The bill required completion of the first twenty miles by July 1, 1875.

In Oregon, Joseph Gaston incorporated the Oregon Central Rail Road Company on October 10, 1866 to begin building the Oregon end of the line. Gaston preferred a route along the west bank of the Willamette River. Elliot, on the other hand, favored building along the east bank of the Willamette. This difference of opinion eventually widened into a rift that led to the incorporation of the Oregon Central Railroad on April 22, 1867. The two companies and their supporters became known as the "West Siders" and the "East Siders," respectively. The next three years saw the two rival corporations fighting in the courts, and ultimately in Congress, for the rights to the land grant and the building of the railroad. While waiting for judicial decisions, the two companies broke ground in April 1867 on successive days. Soon, however, both sides found themselves short of cash, with the result that construction slowed and sometimes ceased altogether. At that point

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Benjamin "Ben" Holladay, a wealthy San Francisco businessman with experience in overland staging and Pacific coast shipping, entered the scene. Holladay bought an interest in a disputed construction contract of Elliot's "eastside company" and promptly took control of things.

Assuming control from Elliot, Holladay brought influential supporters into the eastside project. By using his own money to complete construction of the first twenty miles in the time required by the government, Holladay won the Federal land grant in October 1868. At this point he organized his own company, the Oregon and California Rail Road Company, in March 1870. Leaving behind the eastside group, Holladay forced Gaston out of the picture and acquired the westside road. Under his direction, crews put the Oregon and California into operation over the 198 miles between East Portland and Roseburg by December 3, 1872. Then in April 1873, construction south halted when Holladay's finances ran out due to his over-commitment of borrowing from his other businesses to invest in the railroad.

While all this was going on in the north, events were transpiring in the California that would change the face of the California and Oregon. What would come to be known later in the century as "The Octopus" had begun to spread its tentacles: the Central Pacific had been quietly acquiring other competing railroads in Northern California. The Oregon and California was not to be an exception, and since October 1867 the "Big Four"--Central Pacific owners Collis P. Huntington, Mark Hopkins, Charles Crocker, and Leland Stanford--had been controlling its business and were overseeing the California end of construction. The California and Oregon, through reorganizations in January 1868 and December 1869, had consolidated with the California Central Line from Roseville to Lincoln, and the Yuba Railroad Company from Lincoln to Marysville. The California and Oregon ceased to exist in 1870, but by that time construction was complete and in operation between Marysville and Chico. Beginning in 1870, the Central Pacific undertook construction of the line, reaching Tehama on August 28, 1871, Red Bluff by December 6, 1871, and Redding by September 1, 1872. Having reached Redding, the Central Pacific halted construction for twelve years while the wily "Big Four" waited for Holladay to expend himself in Oregon. They had no intention of undertaking arduous construction up the Sacramento River canyon north of Redding in the face of almost certain financial failure on the part of Holladay.

When news of Ben Holladay's imminent financial disaster reached his German creditors in late 1872, they sent Henry Villard and Richard Koehler to New York in April 1874 to take action on their behalf. In April 1876, Villard seized control of Holladay's warehouses and dock holdings; by 1880 he also assumed control of the westside road of the Oregon and California. Under the first seven years of Villard's supervision, the transportation systems of Oregon saw more advancements than at any other time in the entire history of the state. In addition to Holladay's business interests, Villard also involved himself in the business of the Northern Pacific Railroad, and in the Oregon Railway and Navigation Company. Finally in June 1881 Villard resumed construction on the Oregon and California line. Building south from Roseburg, crews reached Myrtle Creek and opened the railroad for traffic by August 14, 1882. From there they continued building south toward Glendale.

When the Central Pacific saw Villard again taking up the project in Oregon and moving closer to California, they finally felt justified in continuing their end of the line north from Redding. Beginning construction again on April 9, 1883, Central Pacific crews pushed forty miles of railroad north to Delta in the heart of the Sacramento River canyon, opening the line for business on September 1, 1884. There construction stalled again, due at this point to the Central Pacific's irritation with the efforts of the California railroad commissioners in pushing for lower freight rates.

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In Oregon, Villard found construction work through the mountains south of Roseburg quite expensive: this area included heavy grading, tunneling, the construction of a number of bridges and trestles. Despite this, crews reached Glendale by May 13, 1883 and continued construction toward the eventual meeting with the Central Pacific. Trains finally ran through to Grants Pass by December 2, 1883, reached Phoenix by February 25, 1884, and Ashland by May 4, 1884. Now, however, Villard's funds were running low, and although crews carried grading work into the Siskiyou Mountains and partially completed tunnels at Buck Rock and the Summit, the money was gone and construction under Villard's control sputtered to a halt in August 1884.

By this time, other changes had occurred to the south. In 1884 the Big Four had incorporated the Southern Pacific Company as a Kentucky corporation, and in 1885 the new corporation took over operation of the 4,705 miles of railroad that comprised the combined Central Pacific and Southern Pacific. With the Oregon and California in financial disarray, the Southern Pacific eyed it for acquisition potential, beginning negotiations in 1885. On May 12, 1887, Southern Pacific signed a forty-year lease and took control of the Oregon and California; in 1893 and 1899 Southern Pacific bought most of the stock of the former company (though they did not obtain the last of the O&C stock until 1925).

With the Southern Pacific action in the offing, Central Pacific crews had resumed construction for a third and final time in September 1885. Starting from Delta, crews worked north toward Slate Creek, only a mile and a half away, expecting to reach there in ten weeks. Nature dictated otherwise, and the extreme rains during the winter of 1885-86 slowed the estimated two thousand men working the road. Crews finally reached Slate Creek in the spring of 1886 and trains began running on the line. By July 1886 the road reached to a point between Hazel Creek and Lower Soda Springs.

On August 23, 1886, the head camp was at Cedar Flat, now the lower Dunsmuir yard. In January 1887 crews moved the camp to Pusher (today Dunsmuir); the original name derived from the fact that from here, the grade north out of the Sacramento River Canyon was severe, requiring extra pusher engines for the climb. Central Pacific chose Dunsmuir as a division point and proceeded to build a roundhouse, depot and offices there.

To help overcome the severe grade, crews built a fourteen-degree loop north of Dunsmuir at the 18th crossing of the Sacramento River, making it possible for the road to "climb back upon itself high above the lower grade and the Sacramento River." [This is known today as the Cantara Loop, and the bridge at the 18th crossing of the Sacramento was the site of Southern Pacific's infamous derailment and pesticide spill into the Sacramento River in the 1980s.] The railroad built a second loop to aid in the climb to the tableland that would lead to the Strawberry Valley. This second loop, at Sawmill Curve, reached the rim of the canyon somewhere near Mott. The line reached McCloud (now Azalea) by November 13, 1886, and by the end of December 1886 grading crews reached the north end of the Strawberry Valley.

At the same time, 4,500 Chinese workers were grading from Dietz toward the summit at Muir's Peak (today Black Butte). Interestingly, as early as 1880, Central Pacific Chief Engineer, William Hood, had made preliminary surveys of routes through Oregon to Portland. A line northeast from Black Butte and up through the center of Oregon would have avoided the crossing of the Siskiyou Mountains and offered easier construction and operation. Collis Huntington had favored that survey as well, but for once the Big Four had outfoxed themselves. They waited too long for Villard to run out of capital. Unfortunately, by this time the Oregon & California Railroad was already south of Roseburg, and the Central Pacific found itself locked into a route that had to climb steeply through the Siskiyou Mountains to effect a meeting with the Oregon road at Ashland. Thus the railroad

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through the Siskiyou became the first route to Portland from California. The railroad, however, never lost sight of the advantages offered by an alignment through central Oregon. Construction on Hood's alignment--what would be the Natron Cutoff (HAER No. CA-217) would not occur for another quarter of a century.

The railroad opened the line to the station at Edgewood by January 1, 1887, while construction continued rapidly north from that point. Crews had finally reached easy, comparably flat land, and very few bridges were needed. By March 1 the line reached Gazelle and March 10 saw the line connect in Montague with the stage line that headed for Ashland, Oregon. From Montague the line proceeded north, ascending to Snowden, then descending along Willow Creek to the Klamath River and the townsite of Ager. From there the line followed the Klamath River west for several miles to reach a point where bedrock was located for a bridge to the north bank. The survey line eventually turned north from the river along Cottonwood Creek and began the rise over the Siskiyou. Just east of Cottonwood Creek at the base of Bailey Hill, a subdivision was set up for the helper engines that would be needed for the trip west to Snowden and east to the Siskiyou summit. The subdivision point was a town called Hornbrook, and was the starting point for the 3.3 percent grade over Bailey Hill and the long, long upward pull toward the summit.

Oregon and California crews had begun the tunnel at the Siskiyou summit in 1884, long before the road had even begun to approach the area. The route from Siskiyou Summit down into Ashland was the subject of much survey deliberation, since the railroad wanted to build the line along the shortest and fastest route. Although crews continued to push along the route according to the Oregon and California's 1883 survey, Central Pacific surveyors were still investigating alternate routes as late as February 1887. Eventually the railroad abandoned the portion of the 1883 survey between the summit and the state line for a route of Chief Engineer Hood's choosing.

Although the grade on Hood's route was more difficult, it was shorter and less costly. Built to Hood's specifications, the line descended the 2,234 feet from Siskiyou Summit to Ashland in seventeen miles. From the 3,108-foot elevation of the summit tunnel, Hood directed the line in a "sprawling Z-shape" along the mountainside, making it possible for passengers to look out their windows and see the three segments of track like a ladder below them.

Not surprisingly, work in the Siskiyou proved slow and difficult, with the wet, snowy winter being no small obstacle. Finally, at 3:00 PM on December 16, 1887, the road connecting San Francisco to Portland was completed at Ashland. The next evening the obligatory ceremonial last spike was driven in the presence of such men as Charles Crocker and Henry Villard. In giving a short speech, Crocker surely summed up the feelings of many as he concluded, "... I feel proud that I can say I have been associated with the building of this line from its commencement and I'm getting pretty tired of it"

The engineering difficulties of building a line through the Siskiyou proved to far surpass those of building through the Sierra Nevada or Tehachapi ranges. Though the peak elevation of the Siskiyou line was, at 4,135 feet, lower than the Sierra crossing, the line required sixteen tunnels between Redding and Ashland. Curvature was so great that trains would make the equivalent of eight-eight complete circles on this route due to the 100 miles of curved track that were built over 171 miles of land with a total of 31,700 degrees of curvature.

The Central Pacific, which was responsible for building the line from northern California and into southern Oregon, turned operation of this road over to the Southern Pacific in 1885. The earliest records of the Southern Pacific indicate the line over the area between Tehama and Cole as being called the Shasta Division. Tehama to Roseville was first called the Oregon Branch of the

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Sacramento Division. By March 1, 1888, the Southern Pacific expanded the Shasta Division to include the area from Red Bluff to Ashland. Finally, on **January 1, 1899**, the Oregon Branch in California and lines from Oregon were both extended to Dunsmuir, forming what would be known as the Shasta Route until completion of the Natron Cutoff in 1927.

The Shasta Division was an important link in connecting the railroad from Oregon to California, but it eventually came to have an impressive amount of its own on-line traffic. Red Bluff, a railroad division point and the head of the navigable portion of the Sacramento River, was the hub of a burgeoning wheat-shipping business with grain warehouses lining the rail yards in town. Near Sisson was the dispatch point for specially fitted cars carrying loads of live fish from the State Fish Hatchery. From Shasta Springs and Castle Rock the railroad shipped tank cars full of mineral water. The Shasta Route also provided the means for lumbermen to tap vast timber resources along the line, and to ship the wood to Pacific Coast and Midwest markets. The Shasta Route also served to open the area north of Redding to large-scale copper mining.

In 1900 Collis P. Huntington, last survivor of the Big Four, died, closing a period of penurious management of the railroad that had seen the physical plant decline under lack of maintenance or improvement. Edward Henry Harriman had assumed chairmanship of the Union Pacific by May 1898, bringing an end to years of failures and receiverships. Under Harriman control, the Union Pacific board spent approximately twenty-five million dollars to rehabilitate the railroad, acquired the Oregon Railroad & Navigation Company, and re-acquired the Oregon Short Line, increasing Union Pacific mileage from 2,848 to 5,391 miles. Harriman had also early on recognized the value of the Southern Pacific and had tried continually to persuade Huntington to sell him his interest. Huntington resisted until his death, at which time his interests passed to his wife and nephew, Henry. Harriman had previously ordered the Union Pacific to buy Southern Pacific stock, but he still needed the stock Huntington had left his family in order to take control of the Southern Pacific. Finally, in 1901, Edwin Hawley, who had been a close business associate of Huntington, endorsed the sale of Southern Pacific stock to the Union Pacific and vowed to sell his own. Acquiring just 38 percent of Southern Pacific stock, Harriman was thus able to gain control of the Southern Pacific, and eventually increased Union Pacific's holdings of Southern Pacific stock to forty-six percent.

Harriman succeeded Huntington as President of the Southern Pacific in September 1901. The merger had given Harriman and the Union Pacific control of 9,500 miles of railroad between New Orleans and San Francisco (the Southern Pacific Sunset Route) and between San Francisco and Ogden (the Southern Pacific Overland Route), and a virtual gridiron of lines in California and Texas. Harriman, with an eye toward increasing the profitability of his new acquisition, immediately initiated a system-wide program of improvement and modernization of the Southern Pacific and its equipment. These efforts, budgeted at between \$30 million and \$40 million, included:

- Replacement of early bridges system-wide with modern, standardized designs;

- Initiating construction of the Natron Cutoff in Northern California and Southern Oregon to replace the arduous line over the Siskiyou Mountains, and including enlarging shops at Dunsmuir, California;

- Double-tracking the original Central Pacific line over the Sierra and bypassing or enlarging original tunnels to improve alignments and allow the use of larger modern locomotives and cars. Harriman contemplated electrifying the Sierra line (this never progressed beyond the

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planning stage), and planned the Summit Tunnel that was not to be built until 16 years after his death;

Lengthening sidings over the Sierra, allowing the dispatching of longer trains. Half of the sidings were inside the 30 miles of snowsheds that largely enclosed the railroad between Blue Cañon and Truckee; extending the snowsheds required seven million board feet of lumber;

Centralization and expansion of new shop and yard facilities in Roseville, California and Sparks, Nevada, largely replacing the more numerous smaller shops along the early transcontinental line, and expansion of Pacific Fruit Express icing facilities system-wide;

Installation of automatic block signal systems for faster, safer dispatching of trains;

Building of the Lucin Cutoff across the Great Salt Lake in Utah to eliminate the circuitous route along the north shore of the Lake;

Construction of the Bay Shore Cutoff, whose tunnels and double-track main line between San Francisco and San Bruno shortened both distance and operating times between San Francisco and San Jose;

Construction of the Dumbarton Cutoff across the south end of San Francisco Bay;

Extension, in a joint effort with the Santa Fe, of the Northwestern Pacific Railroad from Willits to Eureka, California;

Construction of powerhouses and electrification of suburban commuter lines in the Oakland area, with the intention of electrification of all main lines around San Francisco Bay (this latter never occurred);

Controlling, after the efforts of all others had failed, a break in the banks of the Colorado River that threatened to permanently inundate the Imperial Valley in California;

Building of a new headquarters office building, and massive company hospital, in San Francisco;

Purchasing or building modern, heavier locomotives, heavy articulated locomotives purchased specifically to conquer the grades of Donner Summit;

Construction of new steel passenger cars in the company's own Sacramento Shops;

Construction of large new depots, and remodeling and modernization of older depots, system-wide, many in California in the Mission Revival style to symbolize the state and promote tourism;

Promotion of colonization of Southern Pacific owned or served irrigated lands in Arizona, California, and Oregon;

Construction of new lines into Mexico, and extension of existing lines within Mexico;

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Standardization of everything from track spikes to locomotives among the many railroads under his ownership or direct control.

In a contrast to the penny-pinching years under Huntington's control, Harriman pledged to spend whatever money necessary achieve the full potential of the Southern Pacific lines. Studying the Siskiyou route, Harriman almost immediately recognized that it posed too many difficulties to offer a reasonable chance for modernization, though the rest of the Shasta Route would feel his touch. Hood's 1880 central Oregon option reappeared for consideration.

Beginning in 1901, the railroad placed orders with the Phoenix Bridge Company of Phoenixville, Pennsylvania for a number of new through truss bridges for the Shasta Route. These through Pratt trusses were to be Harriman Common Standard designs. Under Harriman's administration, his railroads had developed standard plan bridges of various types and lengths, from timber trestles to steel plate girders to trusses. The truss designs provided for standardized riveted spans of 100, 110, 125, 140 and 150 feet. For longer spans the Harriman lines utilized pin-connected Pratt trusses of 160 and 180 feet, and pin-connected Camelback trusses of 200 feet. In the Sacramento River canyon of the Shasta Route, Phoenix supplied at least six Common Standard trusses for the 1901 improvements (there may have been more, but some of the original bridge sites were inundated under as much as 450 feet of water in Shasta Lake).

In 1905 Harriman began construction of Hood's Natron Cutoff to eliminate the Siskiyou grades and further improve the Shasta Route. He would not live to see the project completed. Working under the provisions of the Hepburn Act of 1906, in January 1907 the Interstate Commerce Commission had begun to investigate the relations among the western railroads. On the basis of the evidence discovered, on February 1, 1908 the federal government filed a suit in equity in the United States Circuit Court, Eighth District, against the Union Pacific Railroad and its auxiliaries, as well as against the Southern Pacific Railroad, Northern Pacific Railroad, Great Northern Railway, the Atchison, Topeka and Santa Fe Railroad, the San Pedro, Los Angeles & Salt Lake Railway, the Farmers' Loan & Trust Company, Jacob H. Schiff, Otto Kahn, James Stillman, Henry H. Rogers, Henry C. Frick, William A. Clark and, not coincidentally, against Edward H. Harriman who had control of, interests in, or relationships with, all of the foregoing. Harriman, arguably the most significant American railroad empire builder of the early twentieth century, had set off perhaps the most major use of anti-trust legislation.

The government's basic allegation was that the individuals named conspired to effect a virtual consolidation of the Union Pacific and other transcontinental lines with the intent to unlawfully restrain transcontinental commerce. The government asked the court to find this conspiracy a violation of the Sherman Anti-Trust Act, and to "perpetually enjoin Union Pacific, and its auxiliaries from purchasing, acquiring, receiving, holding, voting, or in any manner acting as owner of any shares of the Southern Pacific, Northern Pacific, Great Northern, Atchison, or Salt Lake line." The government contended that under independent control, ten percent of the total Union Pacific and Southern Pacific traffic would be competitive. That ten percent, they pointed out, included California traffic.

In their turn the defendants argued that Union Pacific was not a competitor for California traffic. Lawyers for the railroad asserted that its line to Portland and boats to San Francisco gave it no control over such traffic, pointing out that this route consumed several days more time than Southern Pacific routes, and could not operate at lower rates without prompting Southern Pacific to retaliate by turning a richer eastbound business over to Union Pacific's competitor Denver and Rio Grande at Ogden. For this reason, they stated, the Southern Pacific absolutely controlled California traffic before the merger. Surely, then, "...purchase of a substantial holding of Southern Pacific

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stock by Union Pacific amounted, therefore, to mere advancement of Southern Pacific's gateway from Ogden to Omaha, and in no wise altered competitive conditions."

Initially, it appeared that the courts would uphold the merger. In early 1911, using the United States Supreme Court's "rule of reason," the Eighth Circuit Court found that the merger of the Union Pacific and the Southern Pacific did *not* violate the Sherman anti-trust law. The court concluded that the Union Pacific could not reach California without either building a new line or acquiring the Central Pacific (which by this time was wholly owned by the Southern Pacific) which had the line extending to San Francisco from its junction with the Union Pacific at Ogden, Utah. Since, the court reasoned, the acquisition of the Central Pacific could not be achieved without the acquisition of the Southern Pacific as a whole, the merger was allowable. The court found that the merger was chiefly one of connecting rather than competing lines. Though attorneys for the federal government brought out the fact that Union Pacific and Southern Pacific both reached Portland on their own rails and asserted that the merger would serve to stifle competition to and from Portland, and to and from San Francisco, the court found for the defense that competition between the two railroads for San Francisco was "largely mythical." It found that there was no increase of rates or deterioration of service evident due to the merger, and thus could not find that the merger was an "unreasonable" restraint of trade." The railroads had won the first battle, and the industry felt that the merger of the Harriman Lines was safe from dissolution. But this was but the first battle in what was to become a virtual war.

The federal government never faltered in the wake of this decision, and continued to press its suit through the court system. By 1913, trade journals reported a different story. Bowing to government pressure and legal reverses, the Union Pacific and Southern Pacific proposed to dissolve their merger, with each retaining a part of the Central Pacific. Union Pacific's possession of its portion of the transcontinental line would reach San Francisco and as far south as Fresno. Union Pacific also proposed to retain half of San Pedro, Los Angeles & Salt Lake, which would give it a line from Salt Lake to Los Angeles. Further, Union Pacific would retain control of both the Oregon Short Line and the Oregon-Washington Railroad & Navigation Company, by which it could reach throughout the Northwest, to Portland, Tacoma, Spokane, and Seattle. Southern Pacific, for its part, would retain a 99-year lease to that portion of Central Pacific that constituted part of its line from Portland to San Francisco [this presumably included the Central Pacific-owned Natron Cutoff]. Southern Pacific would also enjoy trackage rights over Northern Pacific's line from Portland north to Puget Sound, and its steamship lines would ply between Los Angeles, San Francisco and the north Pacific coast. Union Pacific ultimately was denied any possession of the former Central Pacific when the so-called "unmerger" took place. Even this was not enough to satisfy the government, which then began to press to force the Southern Pacific to give up the Central Pacific. Other government suits sought to force the return to the government of lands granted to the Southern Pacific in Oregon and Washington, with the claim that Southern Pacific's timber, mineral, and land sales violated the terms of the grant.

The years continued to grind by as the suits wound their way through the court system. Then, in March 1917, the U.S. District Court of Utah decided in favor of the Southern Pacific, denying the government's petition to separate the Central Pacific from the Southern Pacific. In its decision the court opined that it was highly doubtful that the Sherman Anti-Trust Act could be applied to consolidations that had been formed prior to its passage, pointing out that consolidation of the Central Pacific and Southern Pacific had begun in 1870! The court also pointed out that there was no evidence that operation of the Central Pacific as part of the Southern Pacific had had any "injurious" effect on shippers. The court concluded that although the two constituent roads had separate corporate organizations, they had been built by the same interests, had always been operated as a single system, and both would be disastrously crippled if separated. A month later,

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however, the United States Supreme Court upheld a decision by the U.S. District Court of Oregon, enjoining Southern Pacific from selling timber and minerals from lands granted to the Oregon and California Railroad during its construction in the 1870s. The Supreme Court further found in favor of the forfeiture of two million acres of railroad land in Oregon and Washington to the government, providing for government sale of land, timber, and minerals.

In California, the Progressives under Hiram Johnson had taken office; they took up the question of railroad regulation, and undertook the task of "kicking the SP out of politics." Though the Southern Pacific continued to have great influence in the state, the early years of the twentieth century saw it lose the political dominance it had previously enjoyed. "The Octopus" was losing its all-encompassing grip.

Reeling from the cost of the Harriman improvements and the government-ordered dissolution, Southern Pacific saw its profits cut sharply first by the opening of the Panama Canal which cut shipping time between the coasts, and then by the outbreak of World War I in 1914; however wartime traffic and industry brought increased revenues. These were offset by increased traffic to the two sumptuous fairs held in California in 1915, the Panama-Pacific International Exposition in San Francisco, and the Panama-California Exposition in San Diego, as well as by the U.S. entry into the war in 1917. This latter event, however, brought federal control of the nation's railroads under the United States Railroad Administration in late 1917 in order to coordinate the heavy wartime rail traffic.

Government control of the railroads was regionalized, with government-appointed administrators drawn from railroad management professionals in charge of each region. In the West, the Central Western Region came under the control of Southern Pacific President, William Sproule, appointed District Director of the lines west of Ogden, Salt Lake City, Albuquerque and El Paso, and south of Ashland, Oregon.

The end of the war did not bring an immediate end of government control, however. In fact the U.S.R.A. held control of the railroads until President Wilson finally announced in February 1920 that the railroads would revert to private control on March 1, 1920. When this occurred, Southern Pacific resumed its planned improvements system-wide, including the interrupted Natron Cutoff. The 1920s saw S.P. finally complete the Harriman-generated improvements on the Natron Cutoff, over Donner Summit and in the Tehachapi Mountains in the north and south of California respectively, further modernize its equipment, build new steamships to enlarge its fleet, and deal with the deferred maintenance of the U.S.R.A. years.

The late 1930s brought the last great change to the Shasta Route, when the construction of Shasta Dam forced the construction of thirty-two miles of new railroad to replace that which would be drowned by the waters of Shasta Lake. Irrigation engineers had begun by 1871 to search for more water supplies for California. In the boom of reclamation efforts that so changed the definition of the arid West in the first decades of the 20th century, the federal government conceived a plan for a series of dams and canals to irrigate the Sacramento and San Joaquin Valleys. A series of surveys of the upper Sacramento River led to a decision to build a great dam at Kennet. The dam, rising 500 feet above low stream level, would impound a lake with a surface area of forty-six square miles; the 480-foot spillway drop would be three times the height of Niagara Falls. The lake would also inundate twenty-six miles of the Southern Pacific's Shasta Route, including a number of tunnels and bridges.

The State of California, anticipating the need to relocate the railroad, surveyed a new line in 1925. Southern Pacific's engineers selected the final alignment in 1935. Actual construction of the new

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line, estimated at \$15,000,000, began in late 1938 with the construction of a diversion tunnel beneath the west abutment of the dam. This was completed in June 1939 and crews shifted the mainline track into the tunnel. Rail traffic could then continue to use the original route, even as the dam rose and crews drove the new mainline north. The new line required a 3,588-foot double-deck truss bridge carrying highway traffic on the upper deck and the Southern Pacific mainline on the lower deck, as well as six other bridges and twelve tunnels that totaled three and one-half miles in aggregate length. Construction of the massive dam also proved a boon for the railroad, requiring nearly two hundred carloads of construction materials per day by 1942. The last regular train moved through the diversion tunnel and over the soon-to-be-inundated old main line on May 23, 1942, after which crews sealed the tunnel and all rail traffic moved to the new line.

Most railroads, Southern Pacific included, had not fully recovered by the time they entered the Great Depression. Still, the lessons of World War I and the lean years of the Great Depression that saw the railroads making do with less prepared them for exemplary service in World War II. While remaining in private control, the railroads became virtual arms of the military, hauling 90% of the military's freight and 97% of the troop movements. The Southern Pacific's Natron Cutoff carried materiel and troops destined for the Pacific Theater, and supplies for the shipyards of the Pacific Northwest. In contrast to the financial losses of World War I under government control, the railroads' World War II efforts garnered nearly three million dollars a day in income tax revenues for the federal government.

In 1944, *Railroads at War* told of the historic contributions of the railroads, from initially uniting the nation with construction of the transcontinental railroads to the then-present movement of freight and troops in wartime:

America's railroads made the union of the states a physical fact, a practical reality. Today they are the great inner lifelines of that union's survival in the holocaust of world war: an indispensable base behind the tremendous charges under which the tyrant attackers across both oceans are now crumbling.

Farseeing Americans in the early days of the republic, looking from the westward side of the Alleghenies only as far as the Mississippi, thought it might take five or ten centuries to settle those vast stretches. Railroads brought population and statehood all the way to the Pacific in a matter of decades.

World War II loaded our railways with a job whose hugeness and complexity almost baffles imagination. Failure could have been fatal. They have succeeded magnificently.

Even allowing for wartime rhetoric, the railroads accomplished remarkable feats. The Southern Pacific alone eliminated 27 pre-war passenger trains and rapidly converted to handle military needs, building new bridges, lengthening passing sidings, and laying hundreds of miles of heavier rail, all to increase its capacity to serve the growing volume and weight of military traffic. With the induction of much of the younger labor force into military service, Southern Pacific soon faced a severe labor shortage as nearly 20,000 employees left for military service just as the railroad's workload burgeoned. The railroad lowered minimum and raised maximum ages for its workers, lengthened working days, canceled vacations, imported workers from Mexico, and hired women for jobs previously restricted to men, all to compensate for the shortage.

The Shasta Route proved crucial to the railroad's war effort, and carried an enormous amount of traffic that would have astounded its original builders, and that would have simply overwhelmed the original Siskiyou line that the Natron Cutoff had replaced. The Southern Pacific found itself

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handling trains for the Civilian Conservation Corps and the Coast Guard, as well as hospital trains with war wounded. In addition to moving troops and war supplies, the Southern Pacific also moved 125 "alien specials," transporting trainloads of Japanese Americans to internment camps in the interior, where they were incarcerated. Nevertheless, Southern Pacific's substantial accomplishments in World War II service far overshadowed its use in this unforgettable demonstration of war hysteria and racism. At the end of the war, the railroad received commendations for what was termed its "finest hour."

Today the Southern Pacific's Shasta Route, the main line through Oregon since its completion in 1887, remains a critical element the railroad's (now the Union Pacific) overall system. In spite of the Shasta Dam realignment of more than fifty years ago, at any point along its length, the Shasta Route continues to impart a sense of time and place linked inextricably to its period of significance.

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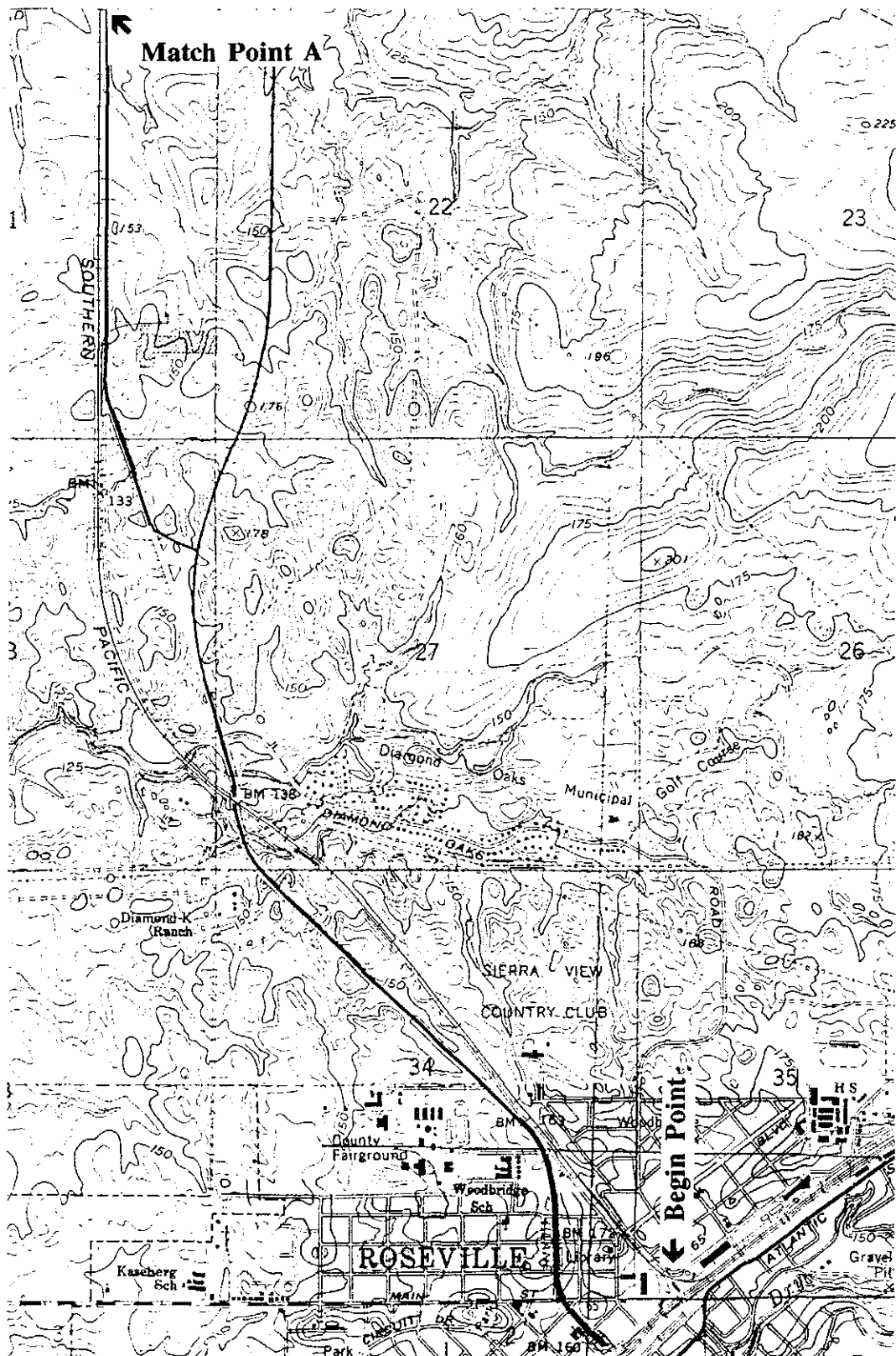
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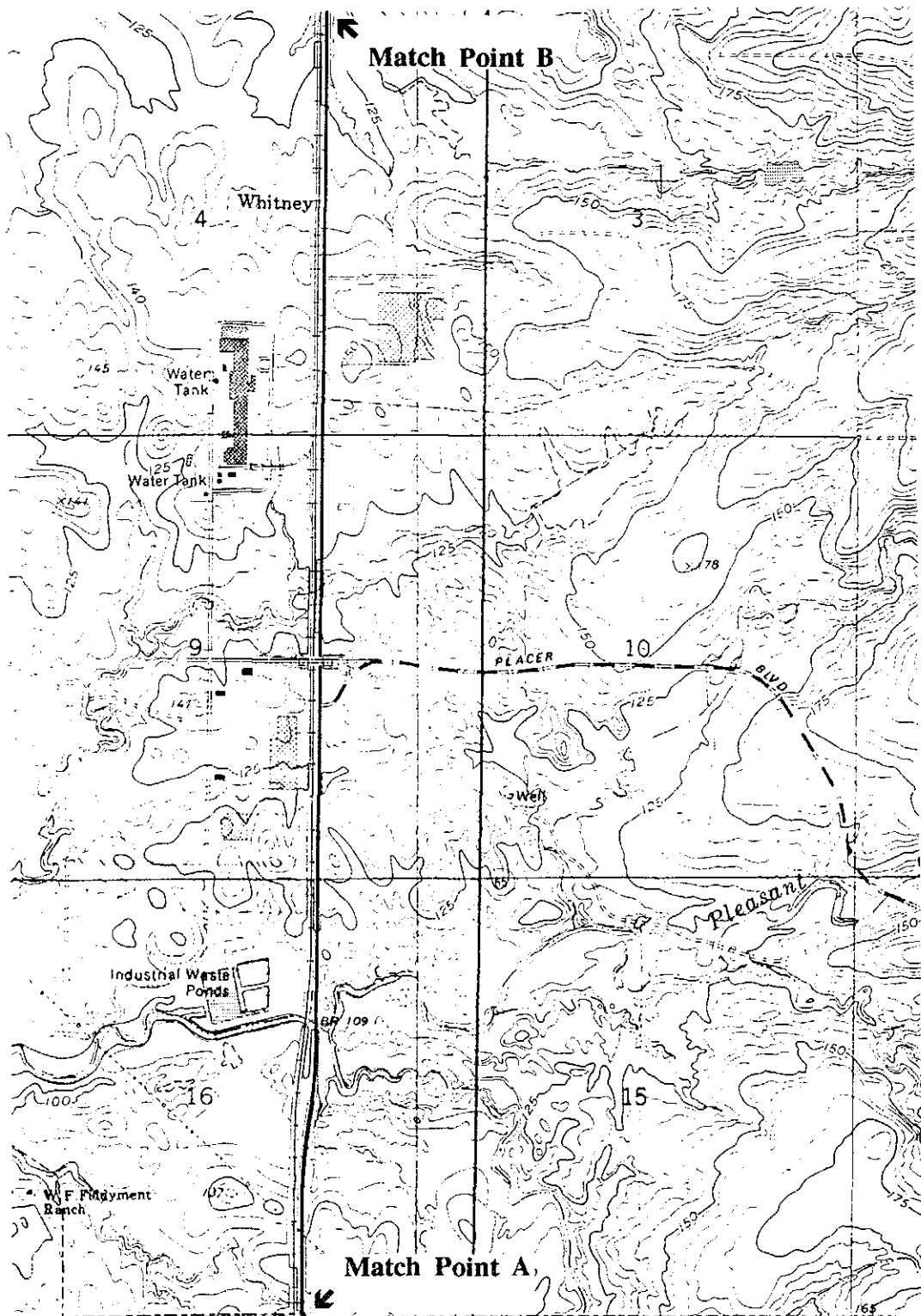
IV. PROJECT INFORMATION

As a result of the 1996 merger of the Union Pacific and Southern Pacific Railroads, a federal undertaking under the jurisdiction of the Surface Transportation Board of the U.S. Department of Transportation, and in order to accommodate freight trains utilizing longer and taller cars and loads--tri-level auto rack cars and cars carrying double-stacked containers--the Union Pacific will need to increase bridge clearances on the former Southern Pacific Shasta Route. The affected bridges, built between 1898 and 1901, are contributing elements of the National Register-eligible Southern Pacific Shasta Route Historic District. The work may impact character-defining elements of the bridges. Inasmuch as this would cause an adverse effect to the bridges, Union Pacific, in consultation with the California SHPO, has elected to record the bridges for the Historic American Engineering Record. Documentation was carried out by P.S. Preservation Services, John Snyder Field Director and Historian, and Ed Andersen, Photographer. Photos were made in October 1997, and research was carried out from November 1997 through June 1998.

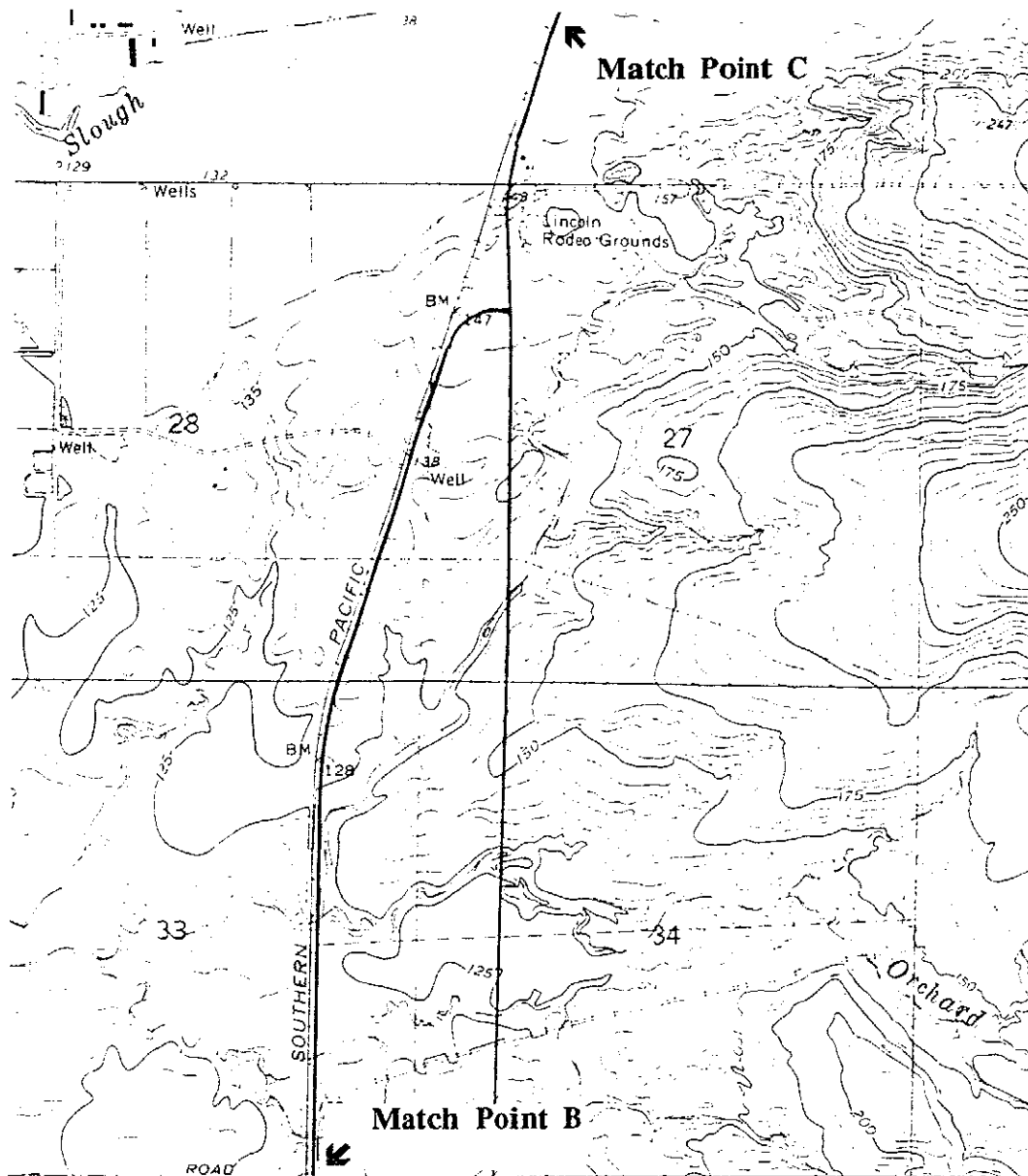
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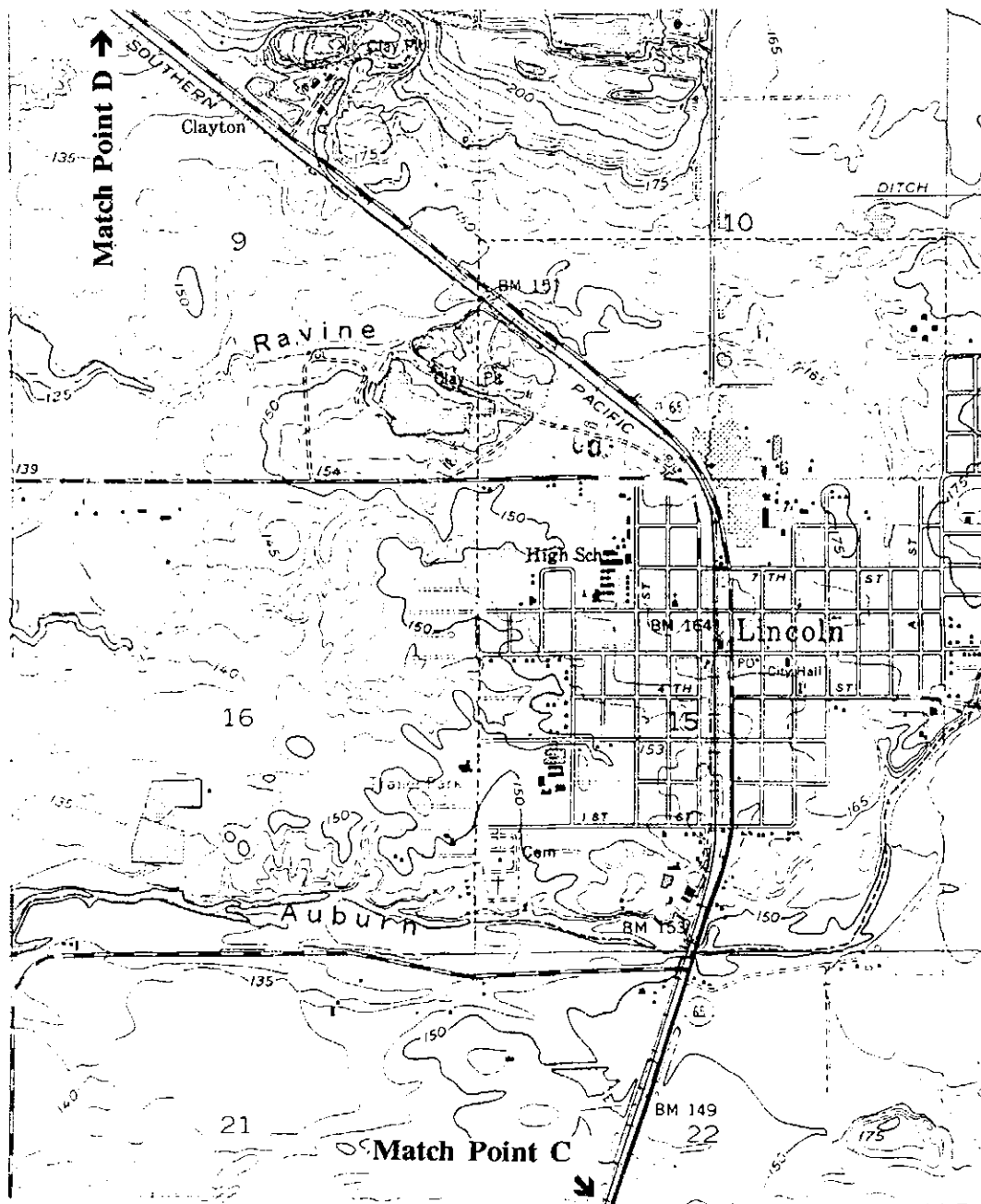
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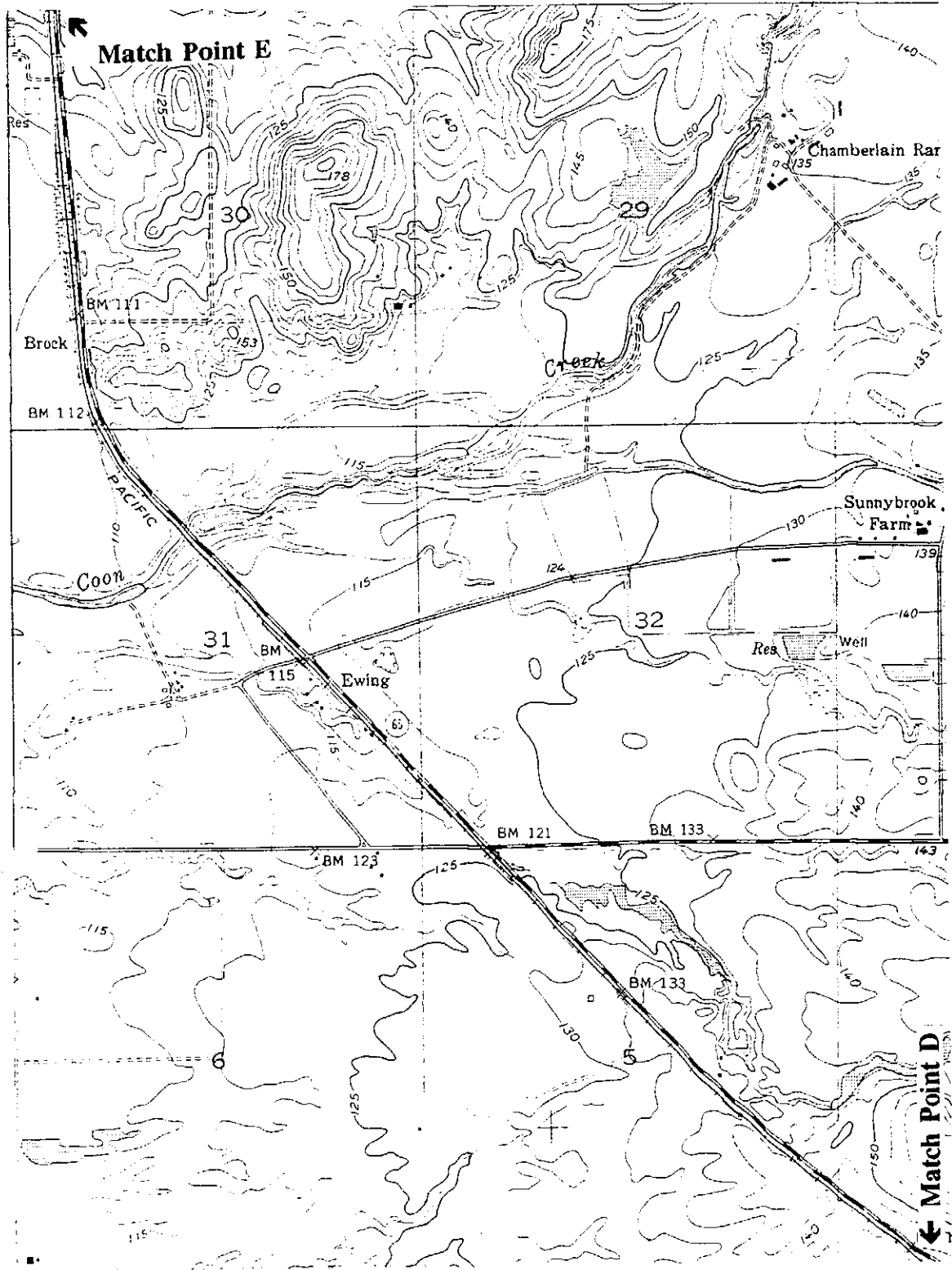
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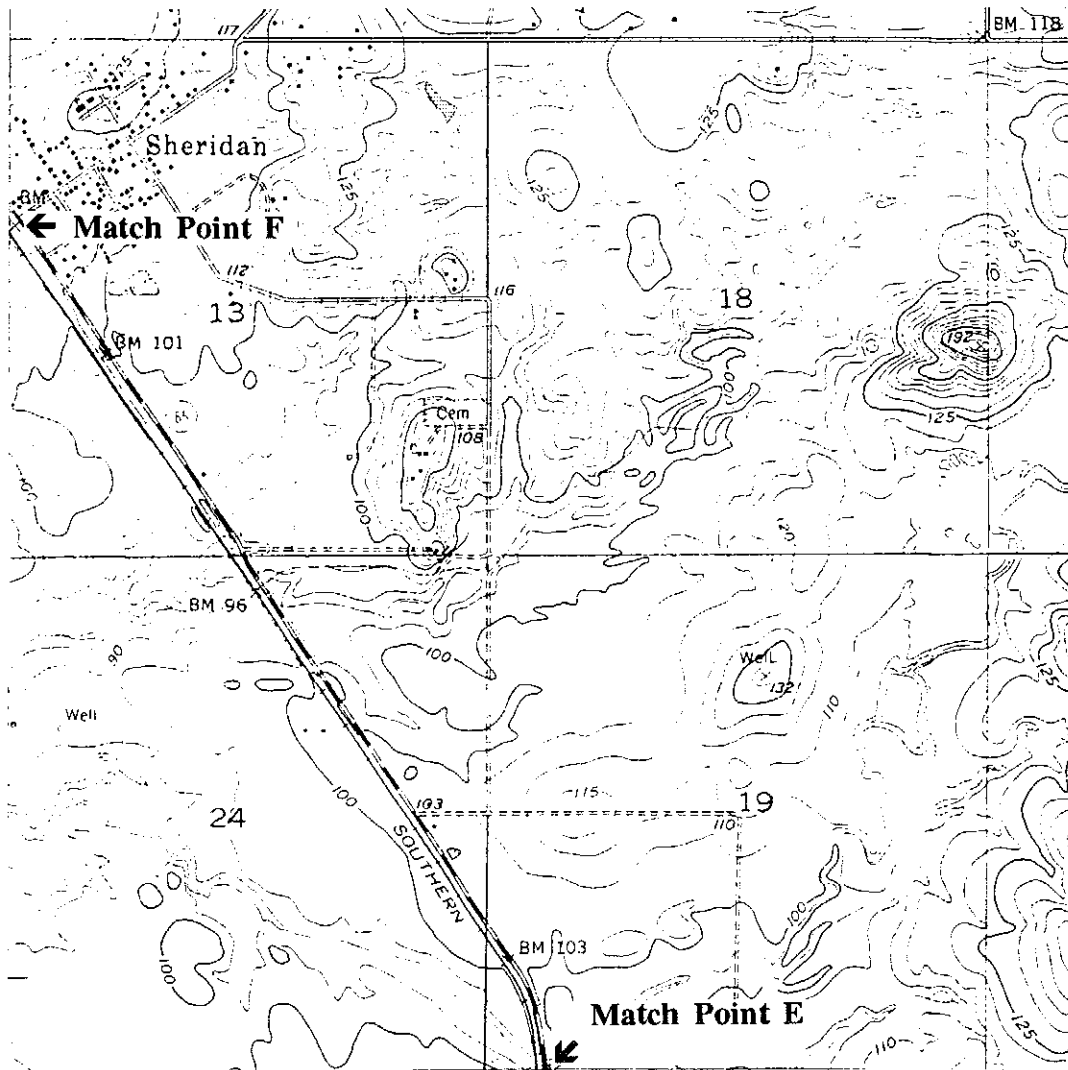
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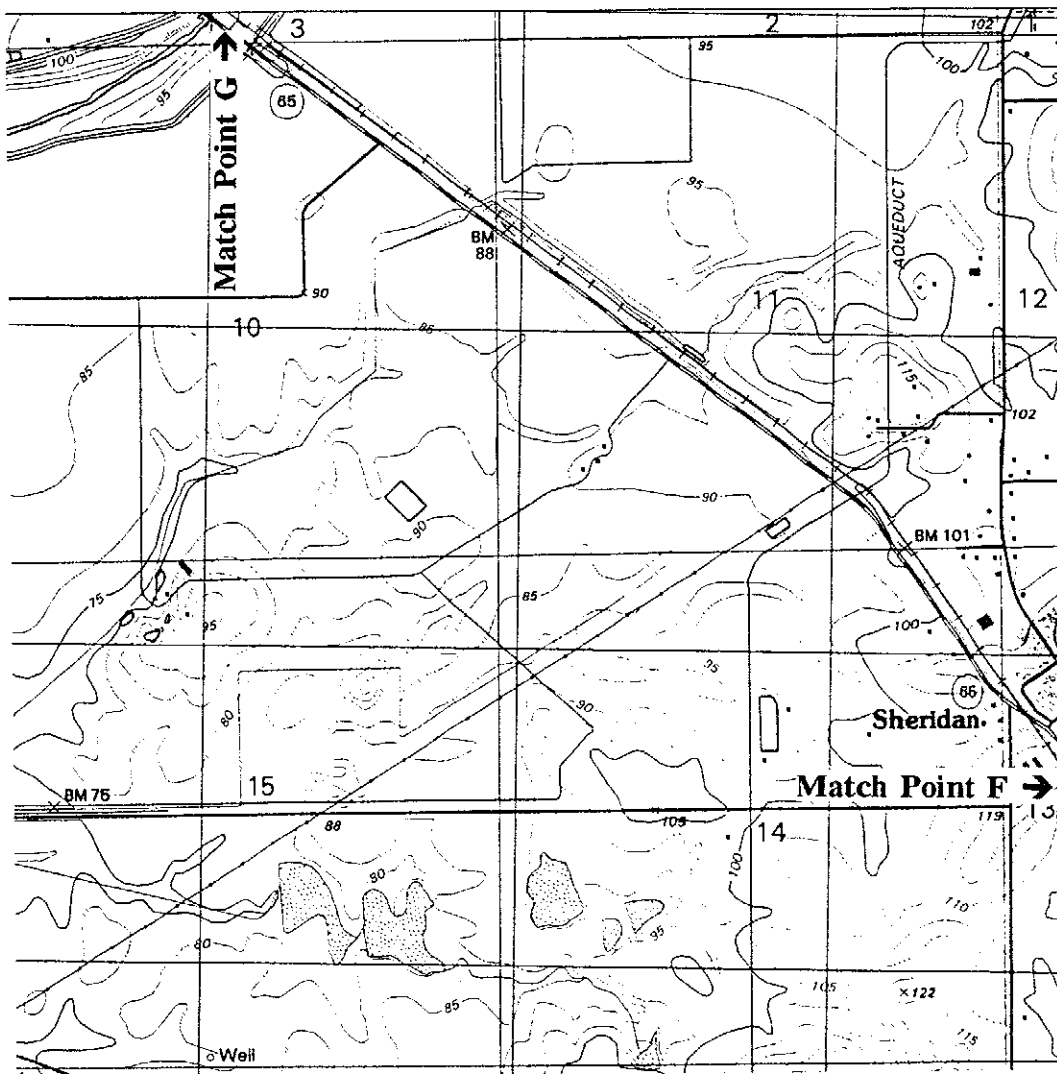
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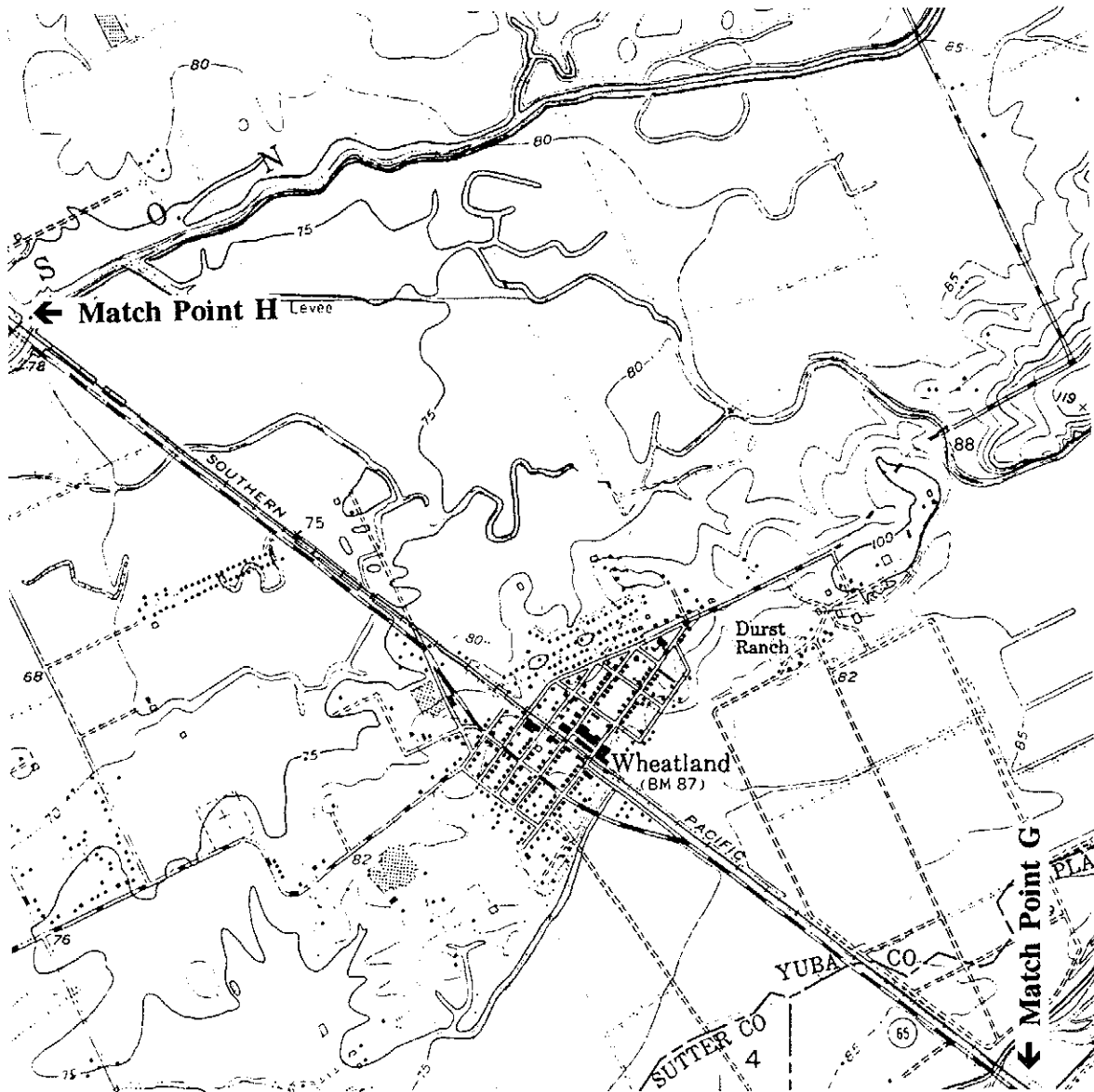
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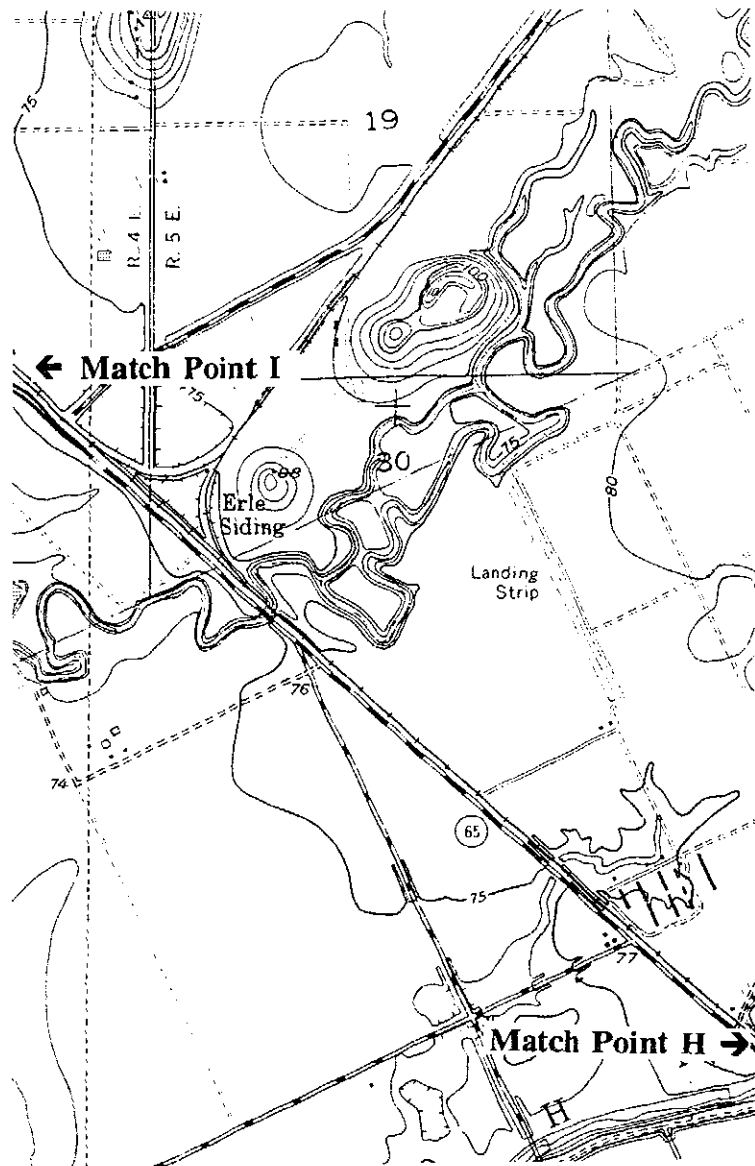
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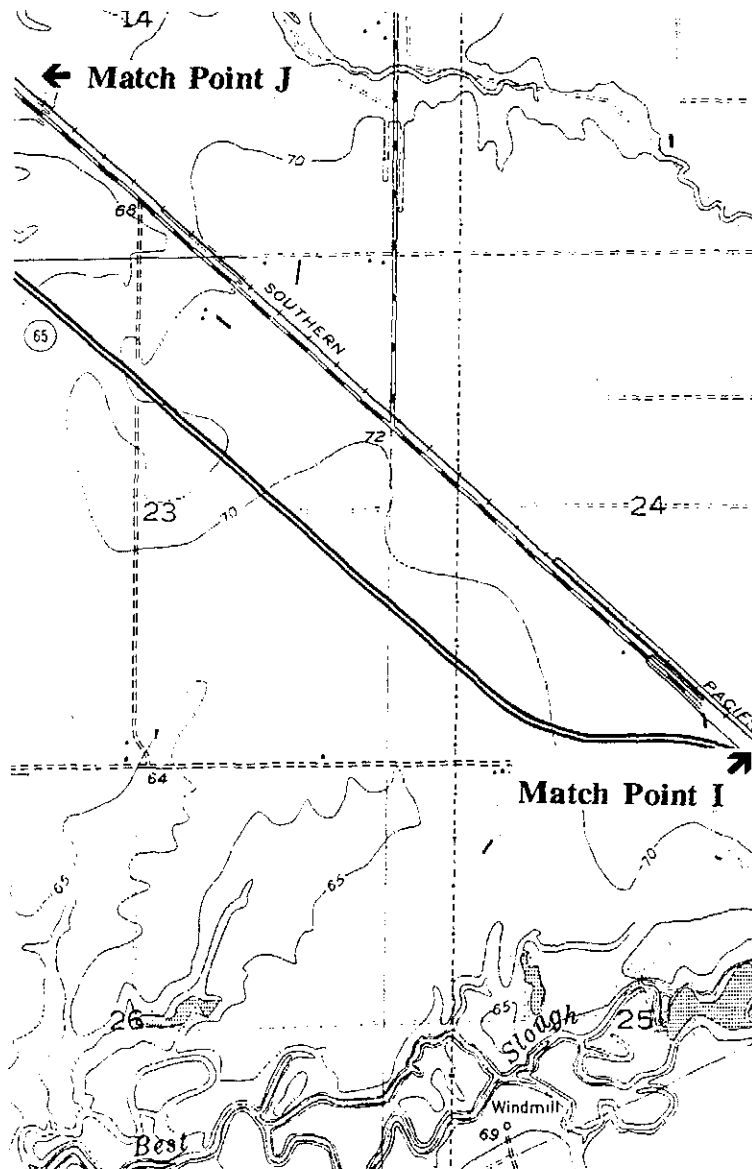
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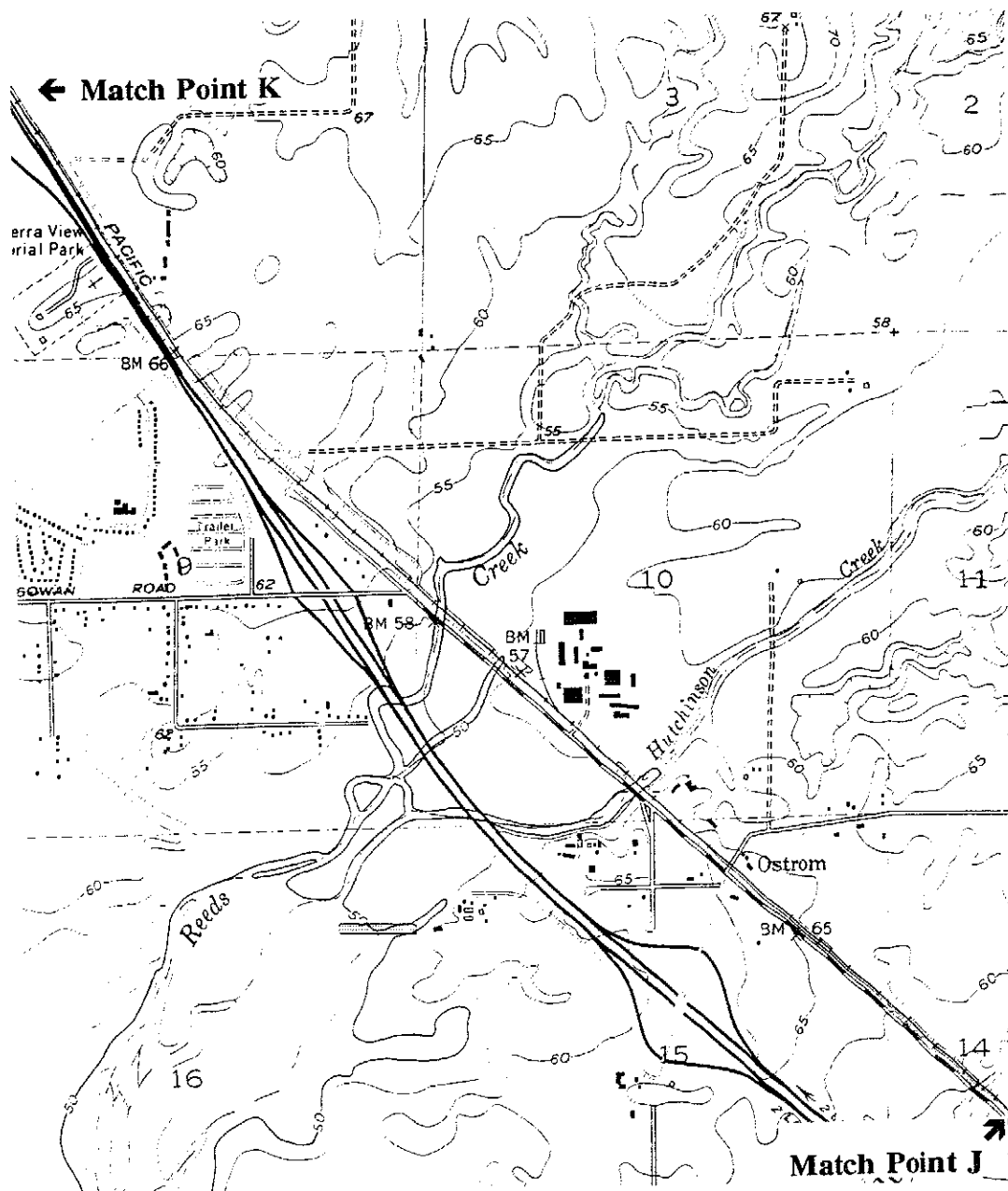
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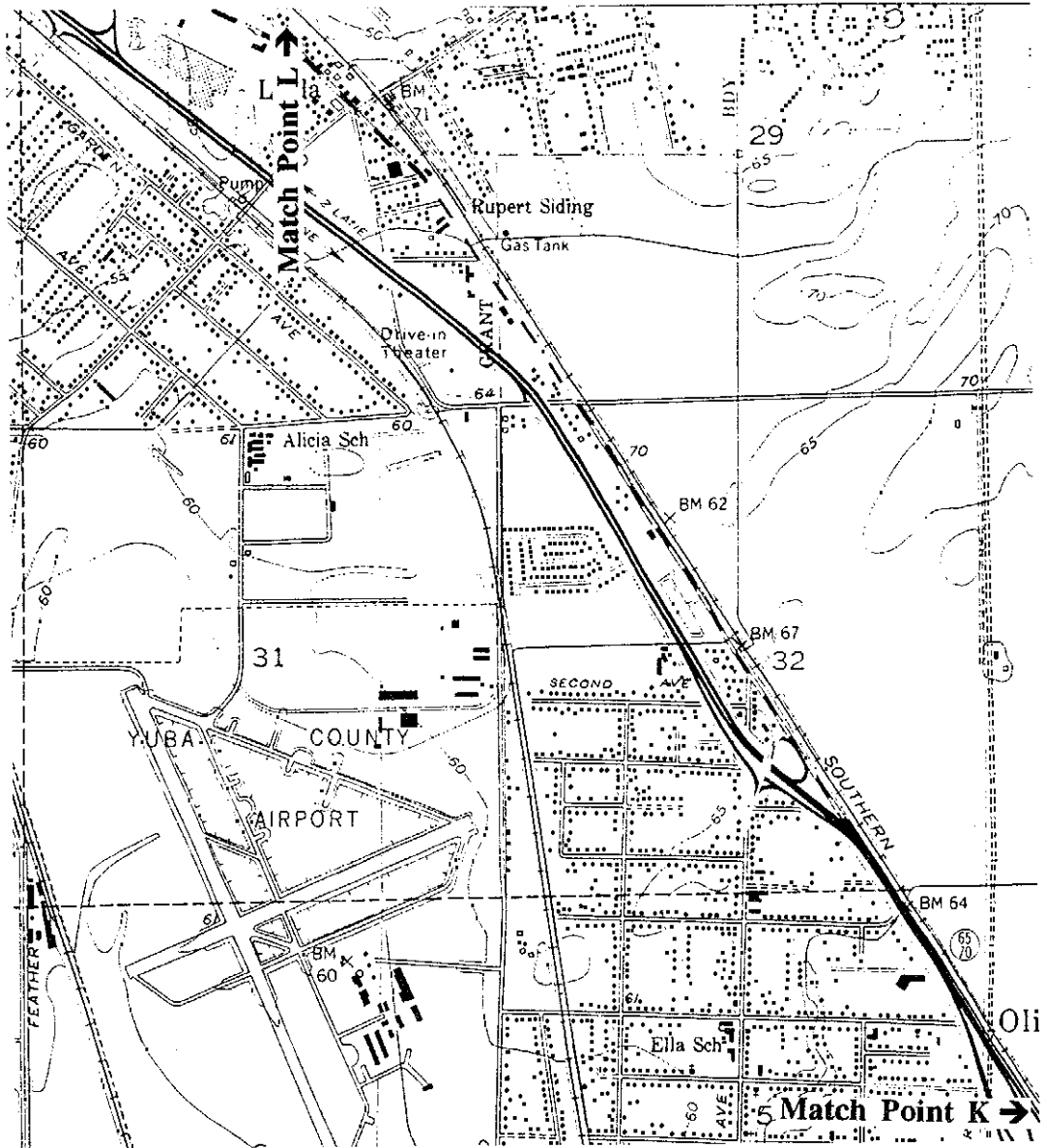
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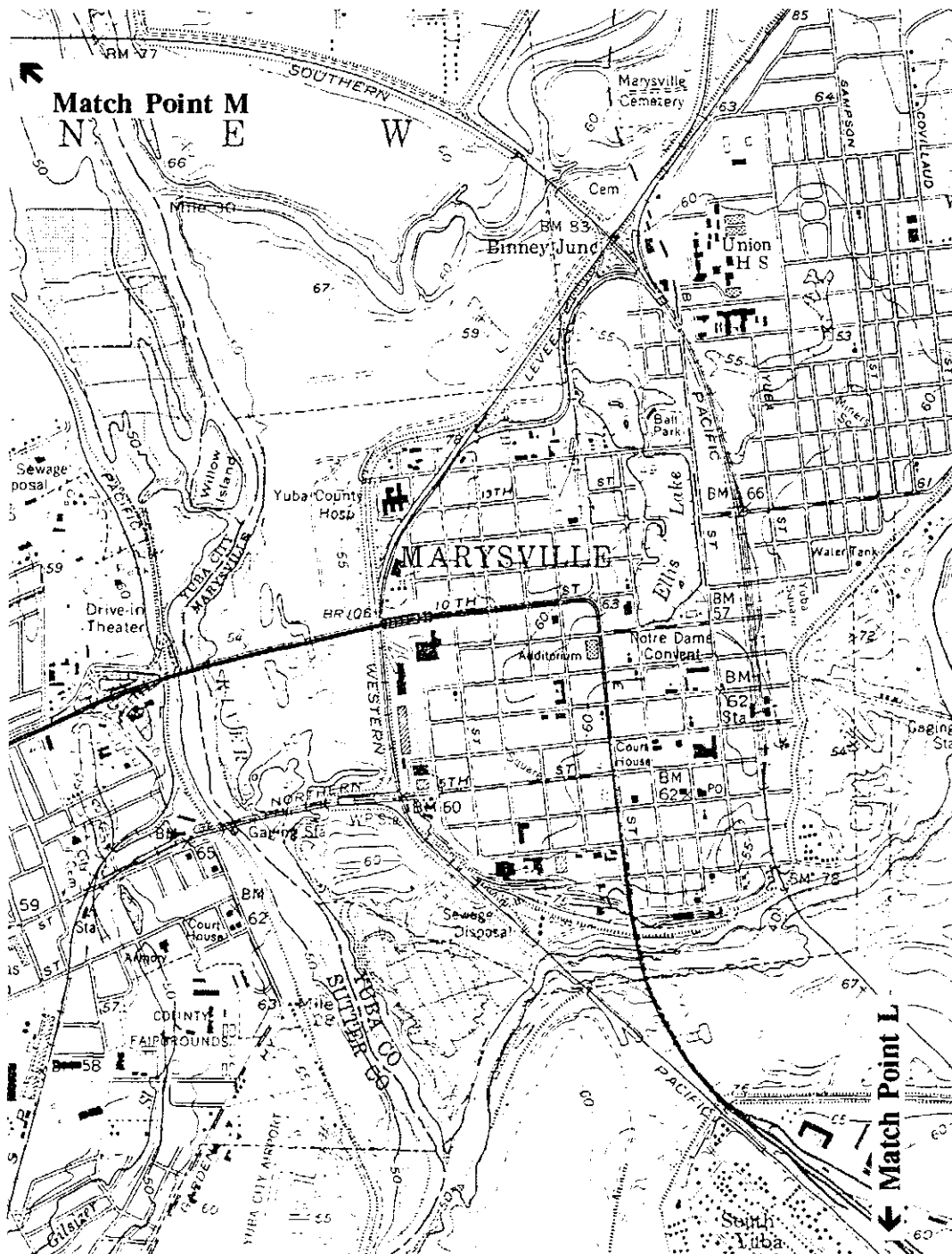
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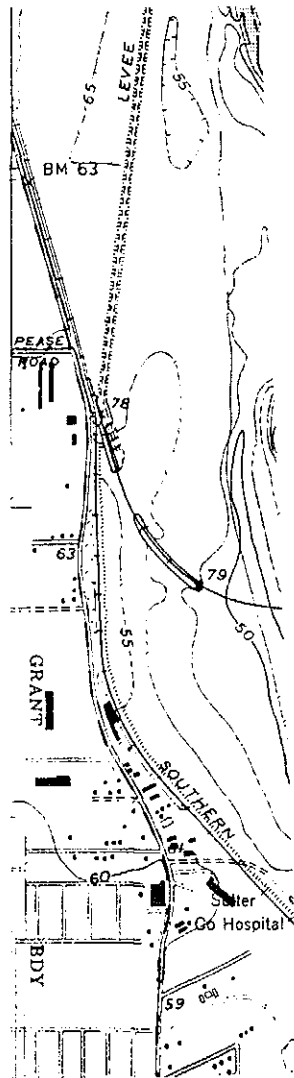


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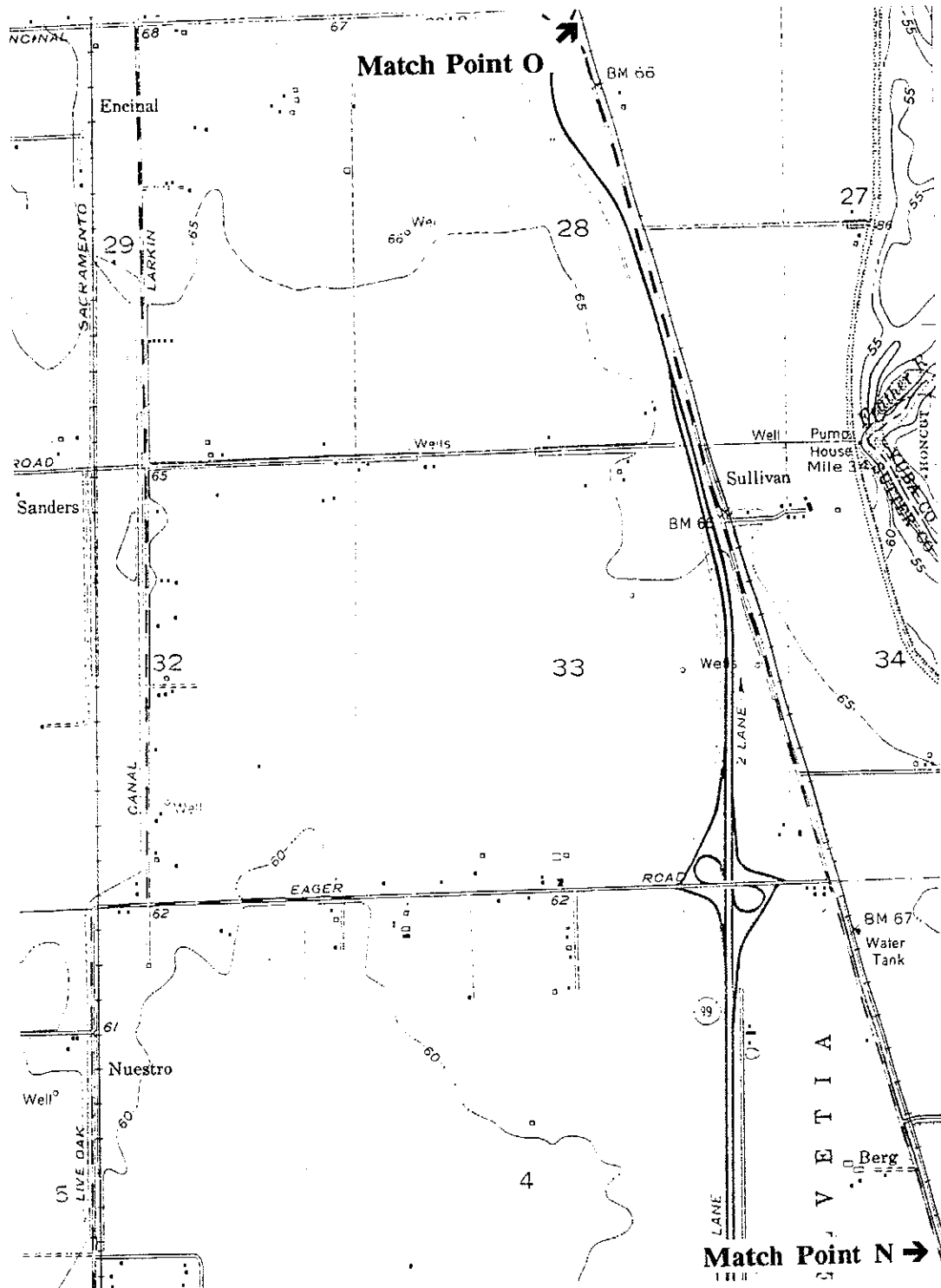
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Match Point N →

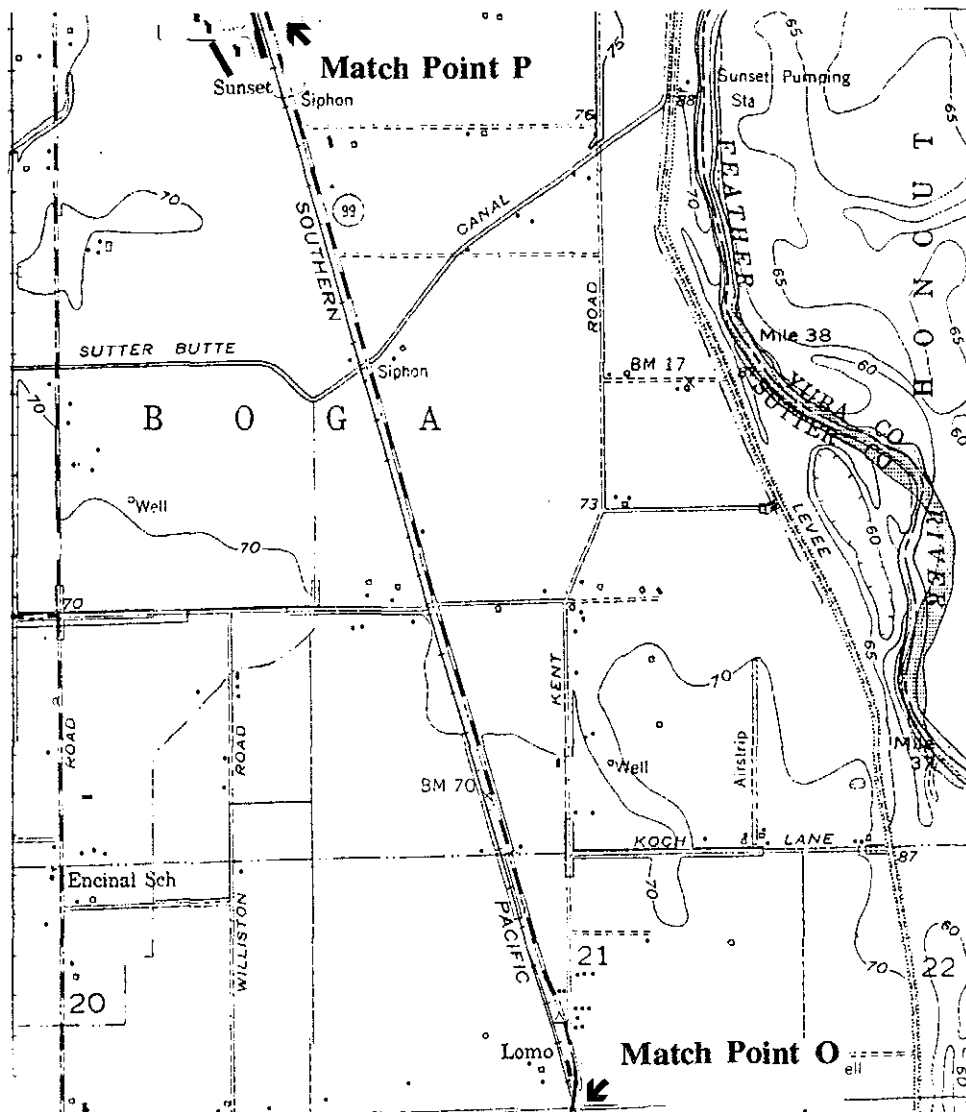


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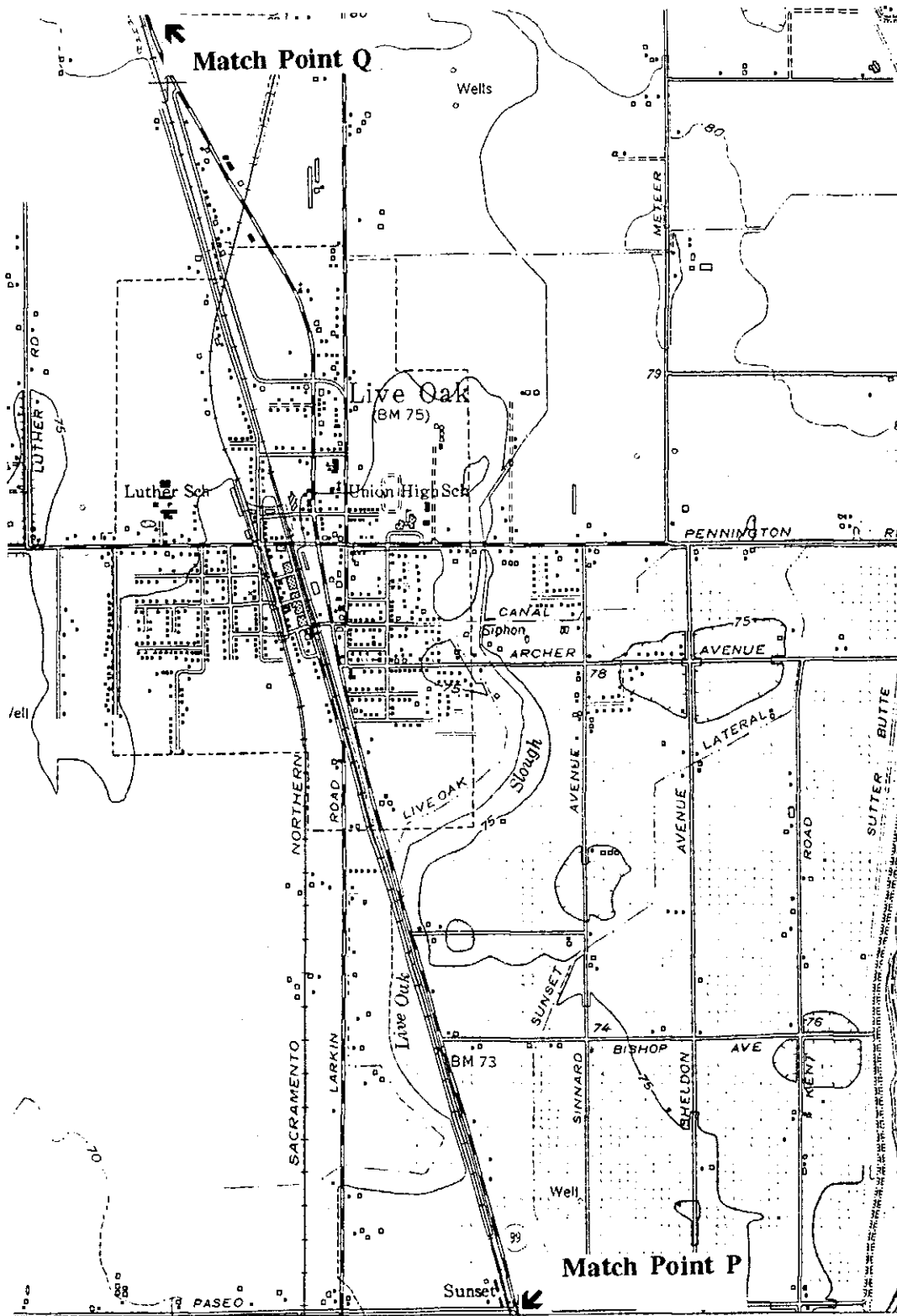
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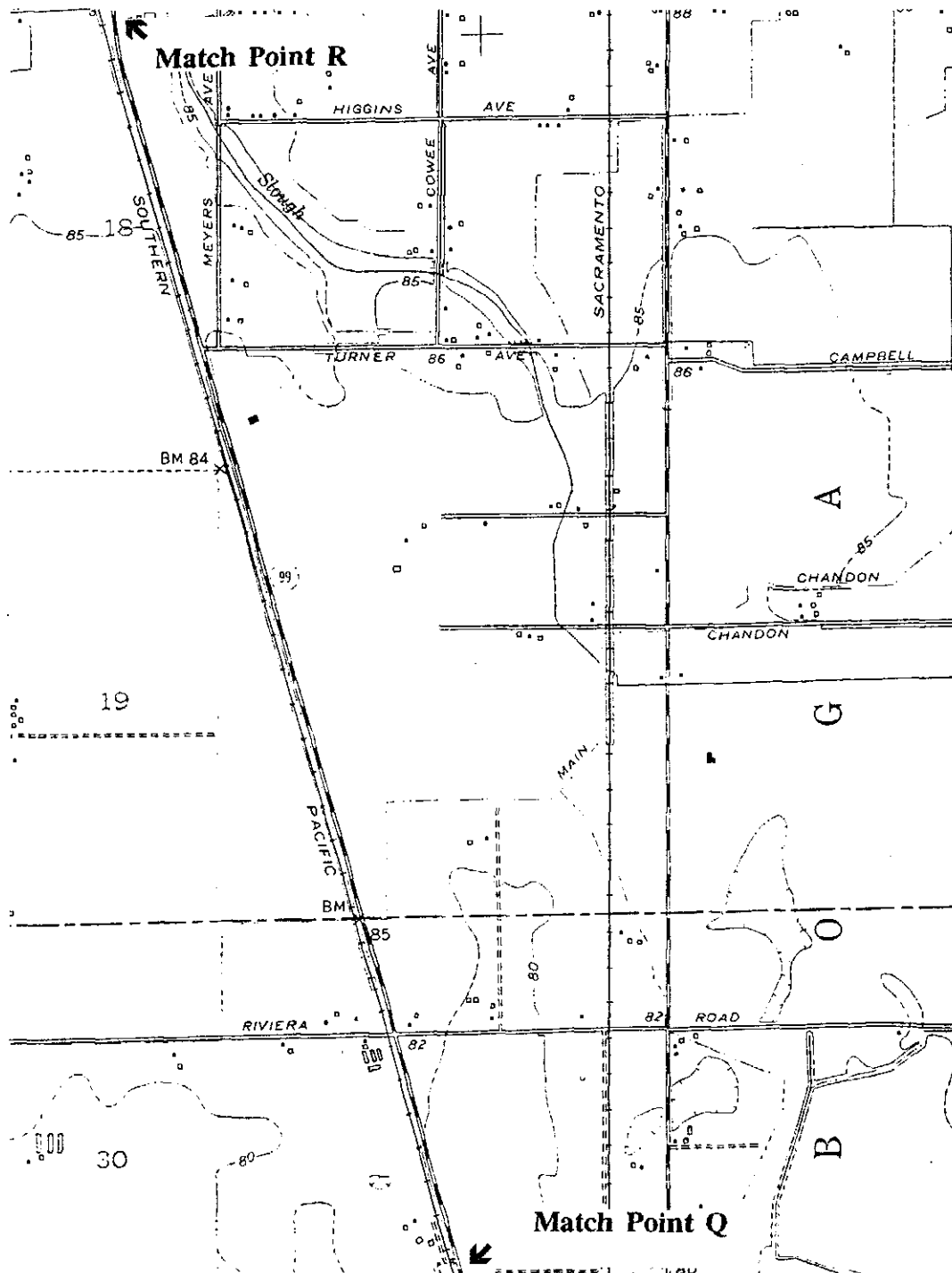
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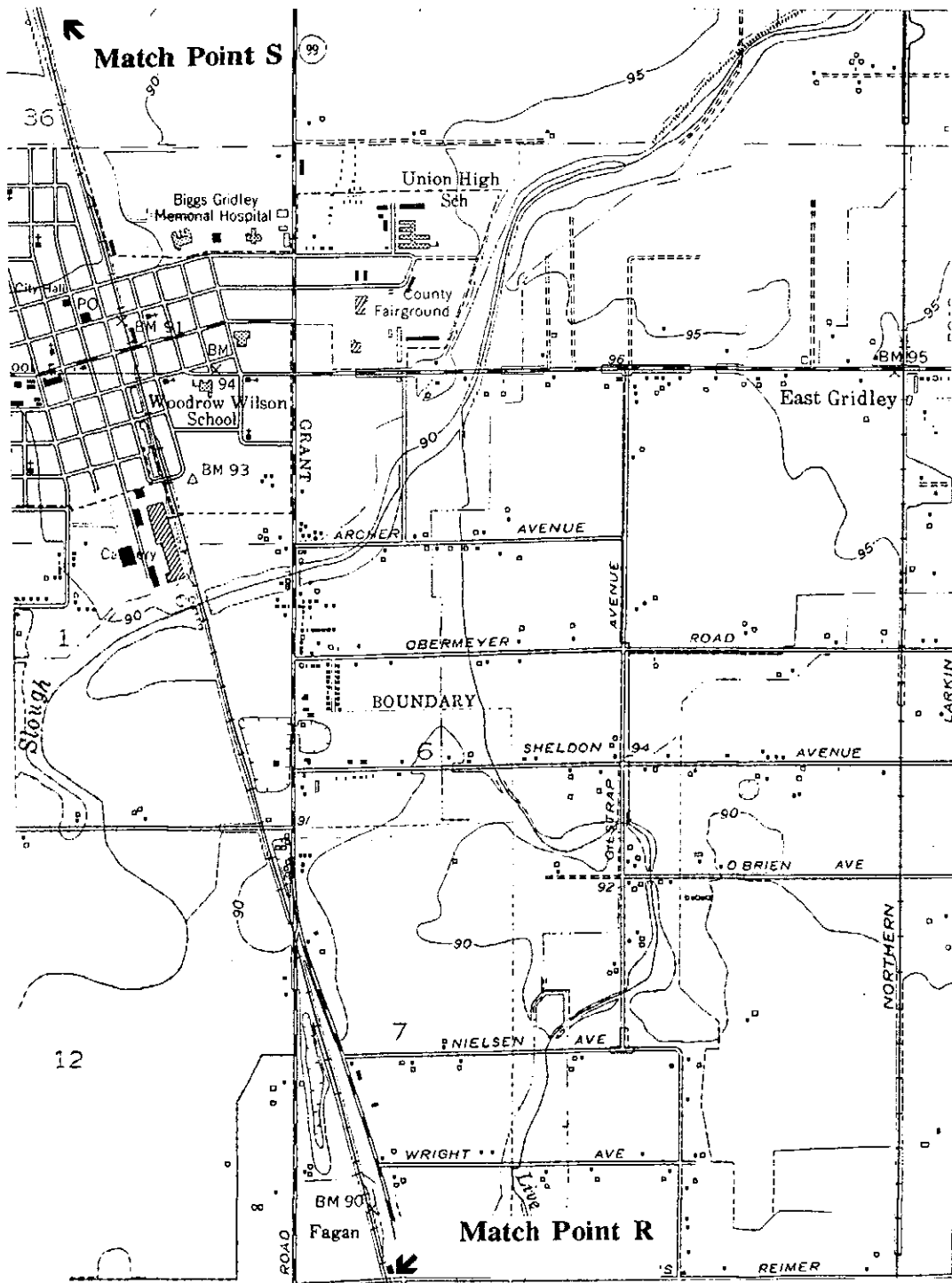
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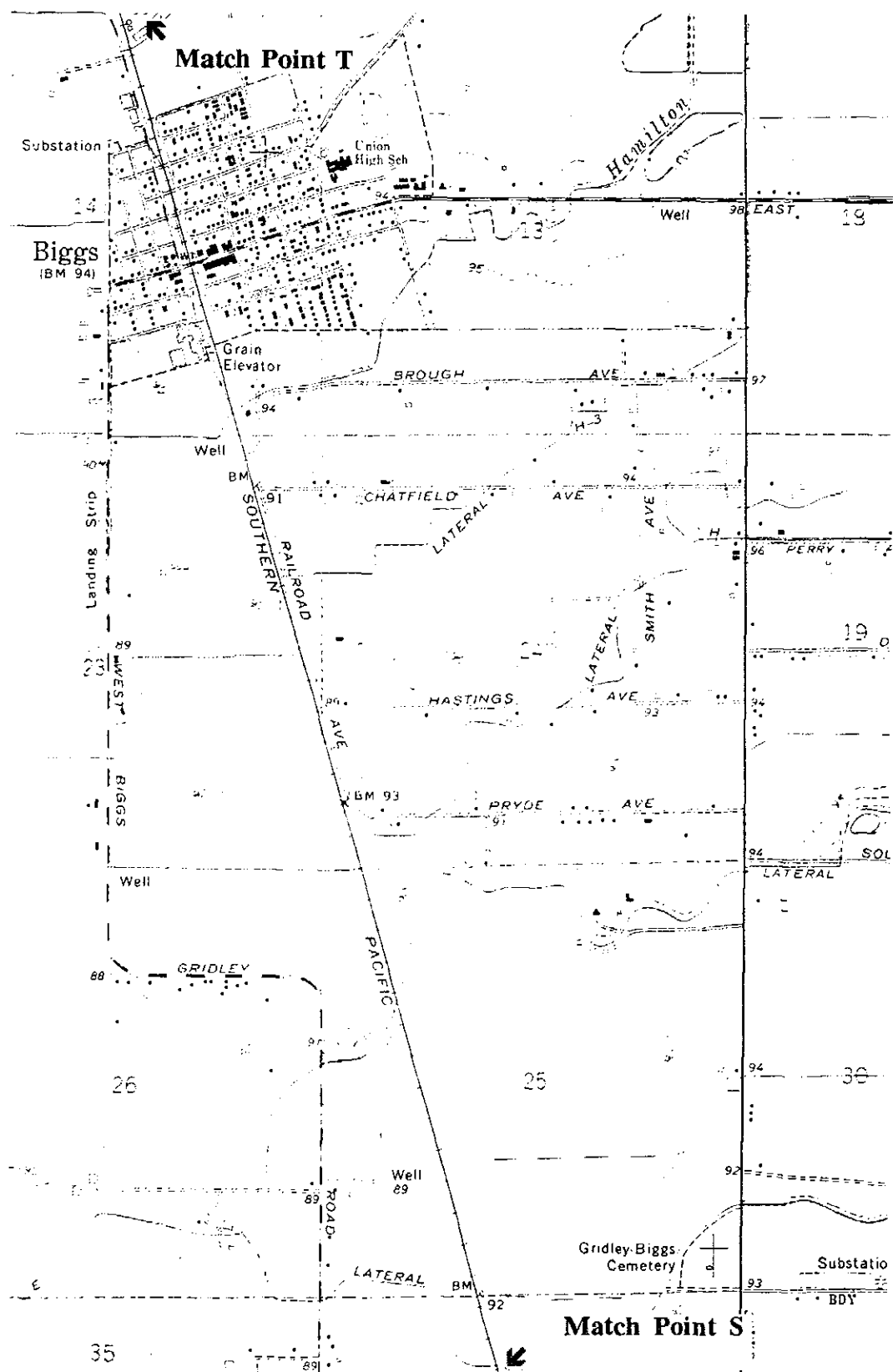
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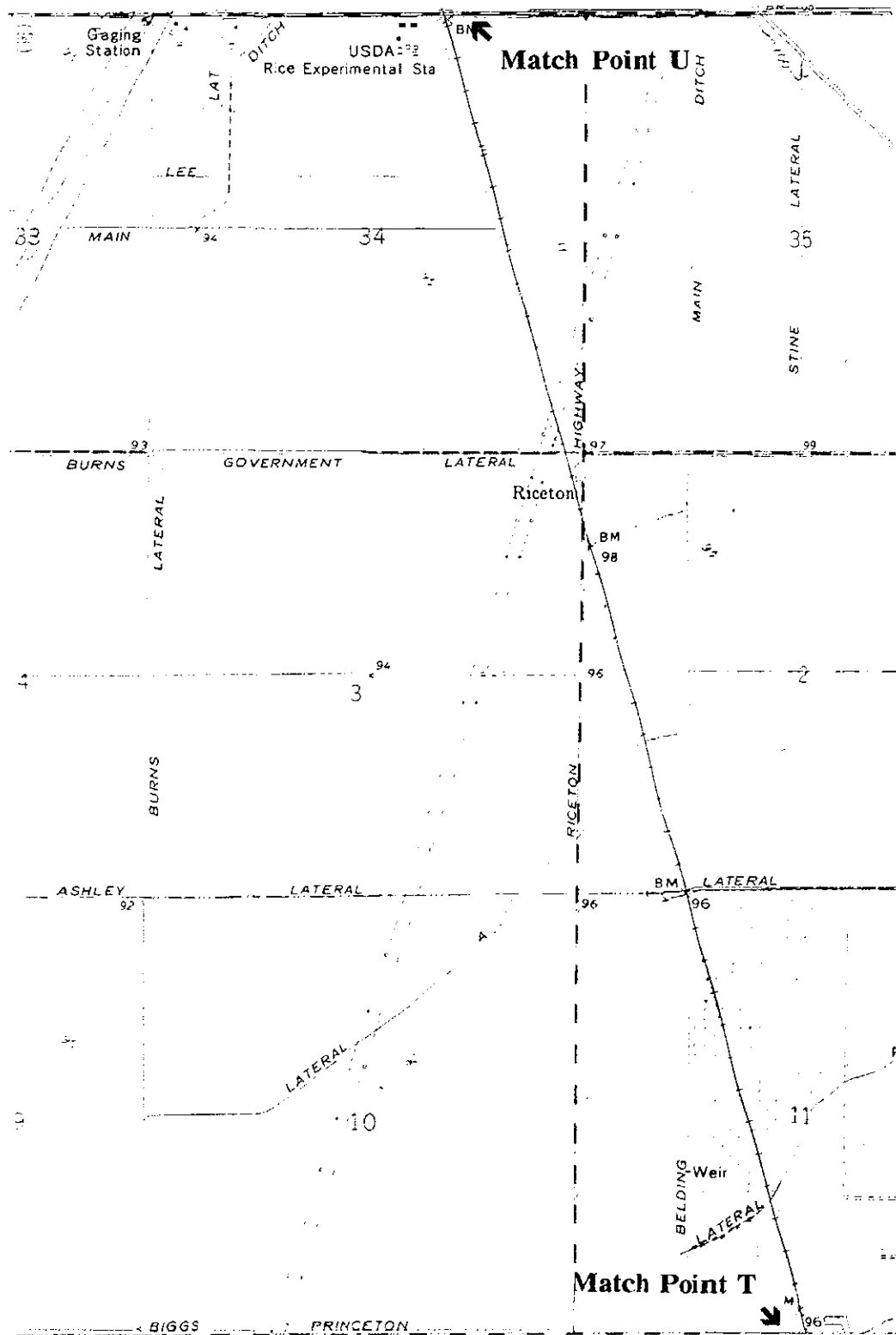
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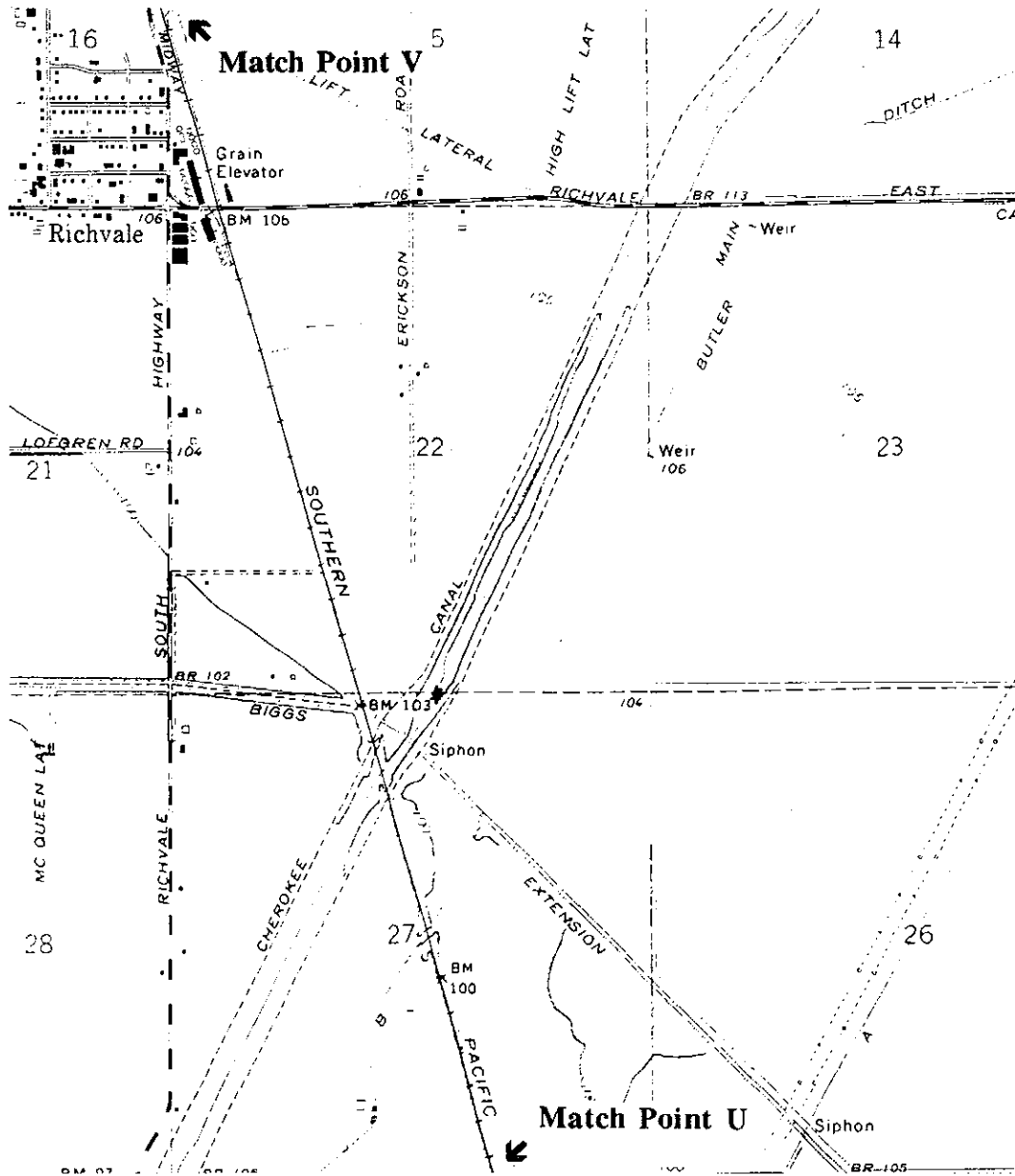
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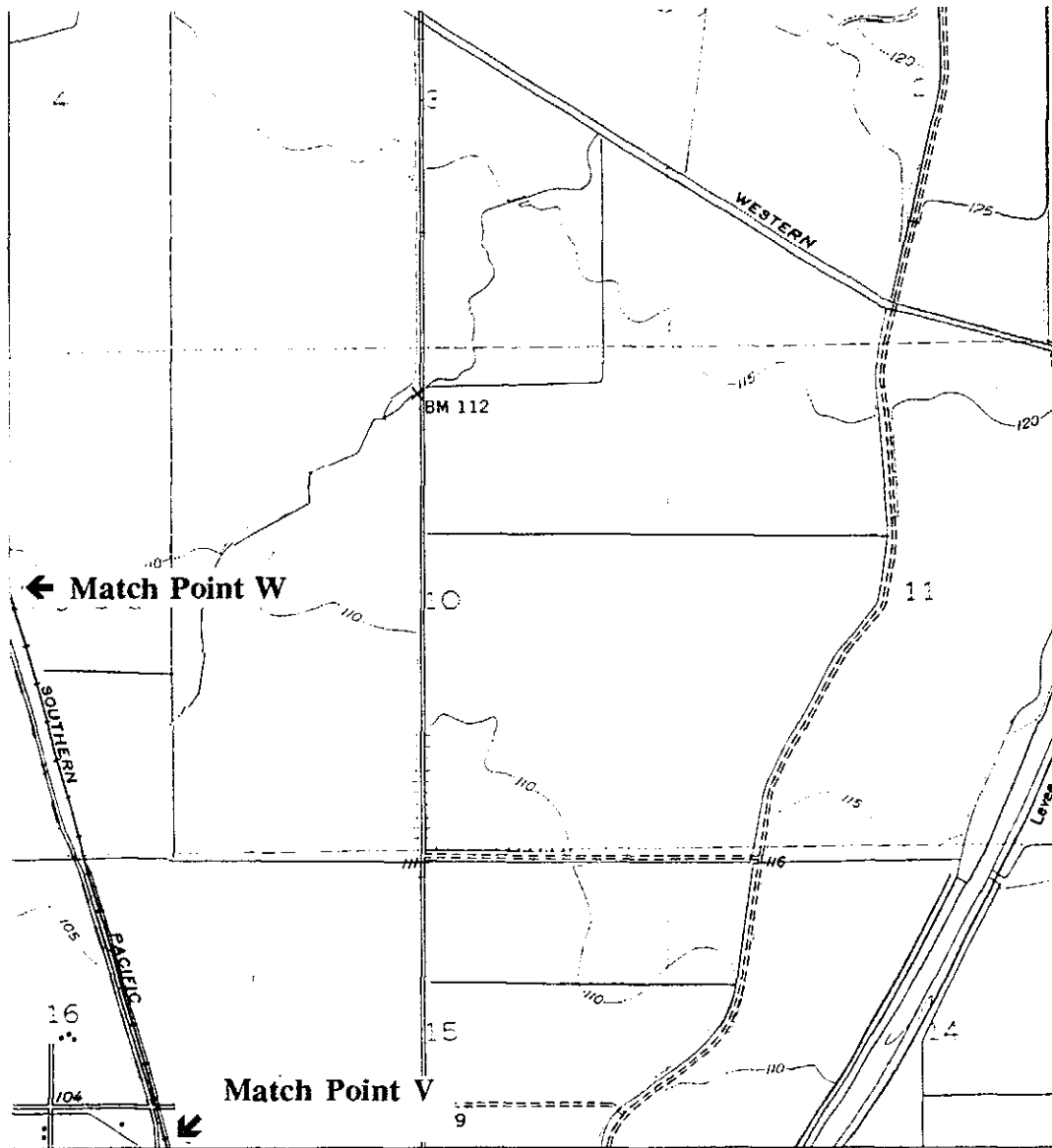
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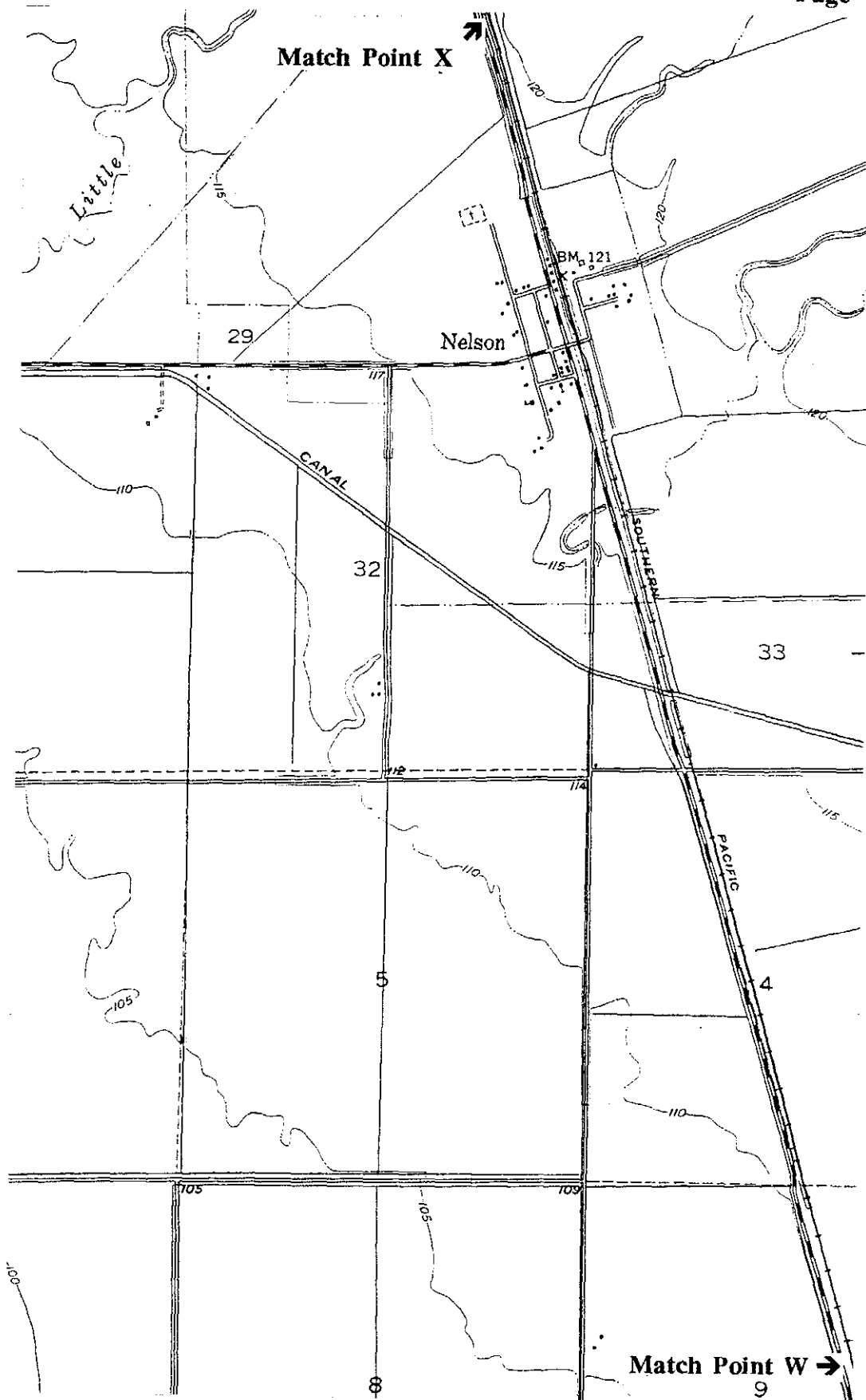
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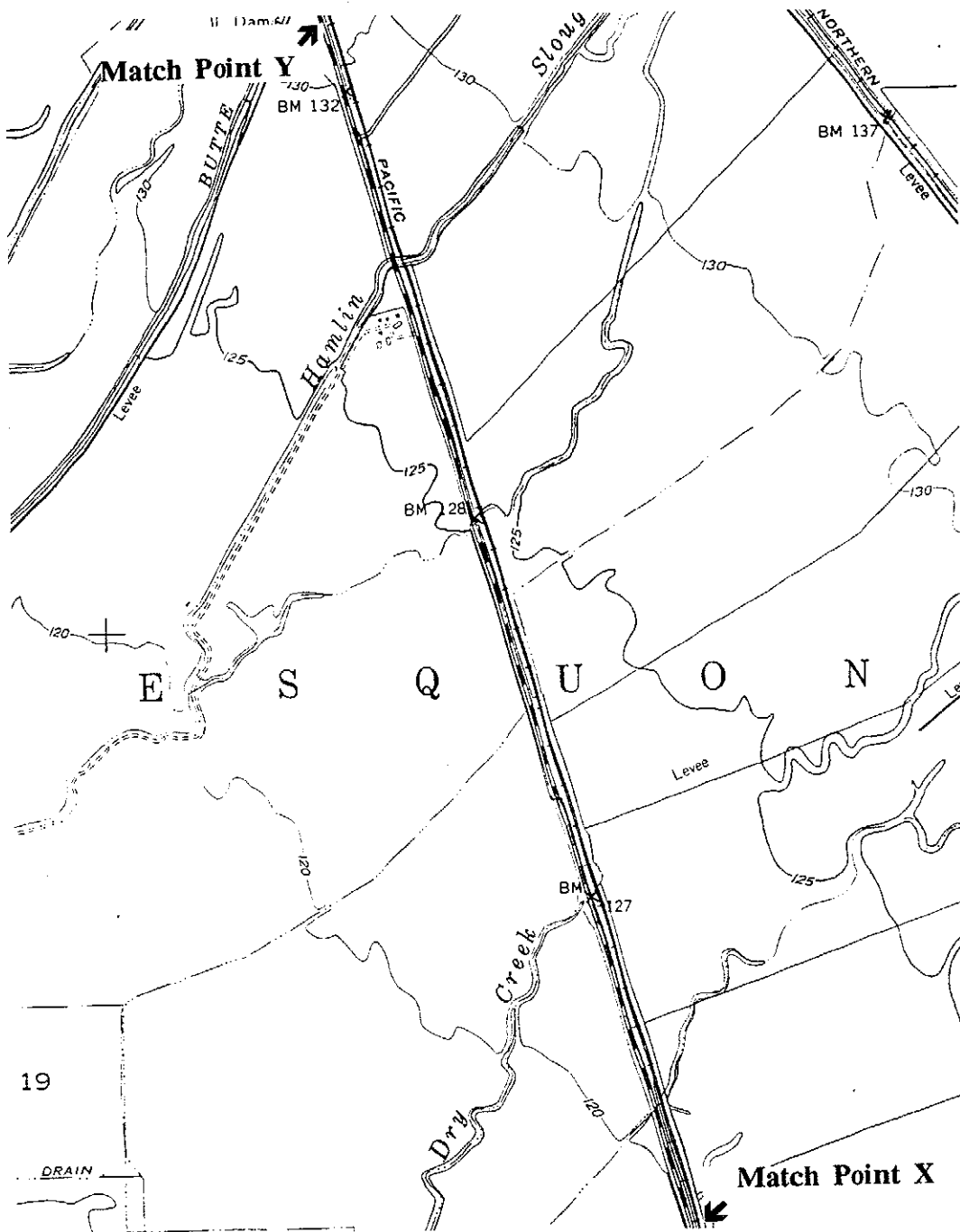
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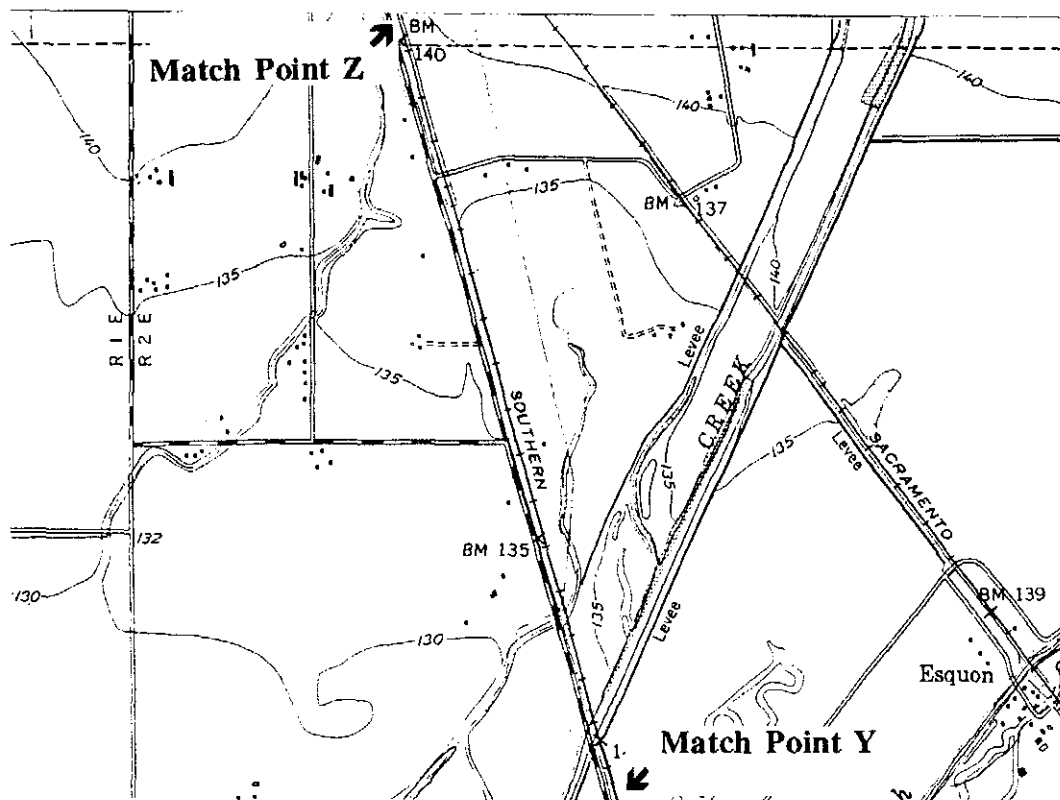
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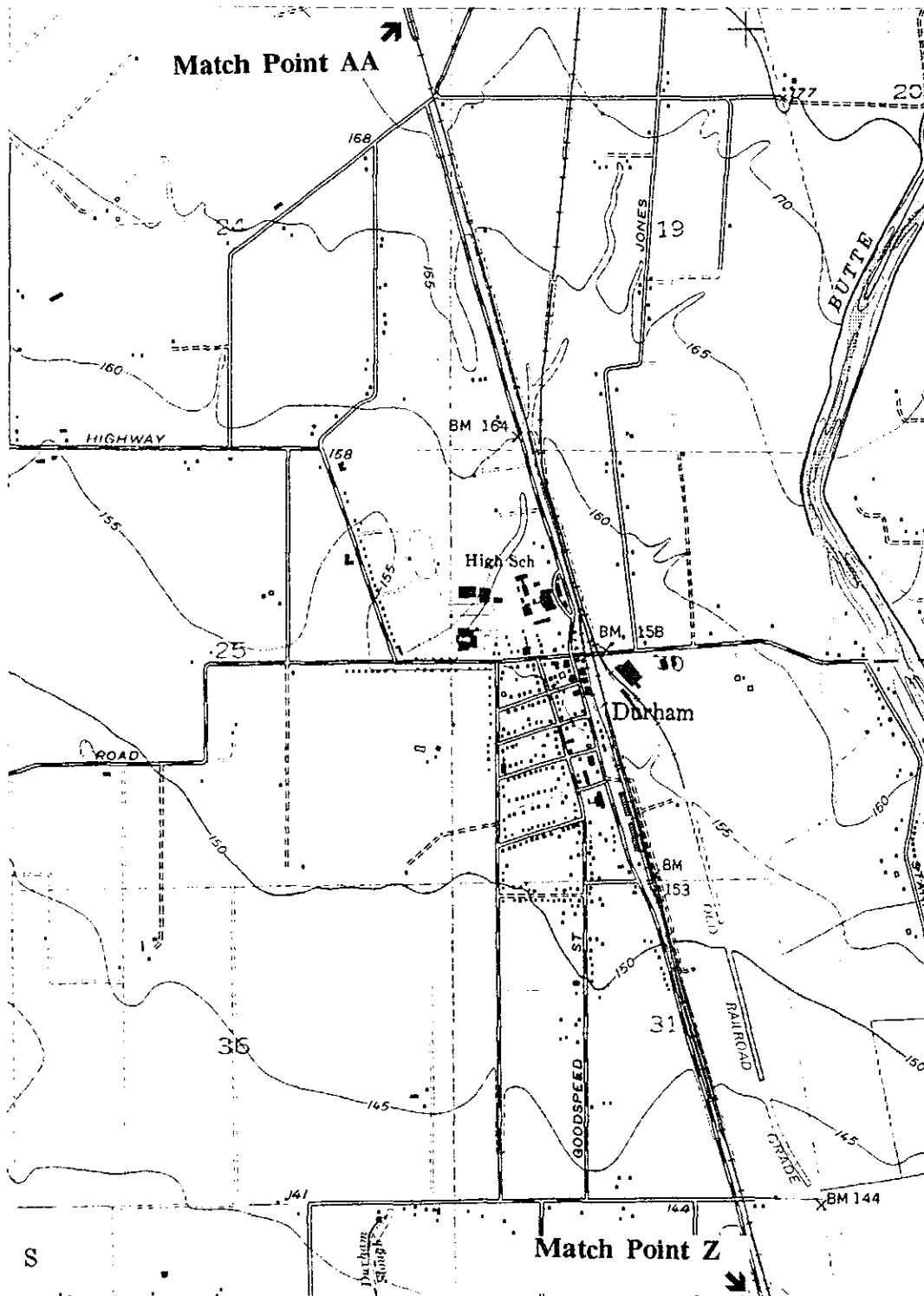
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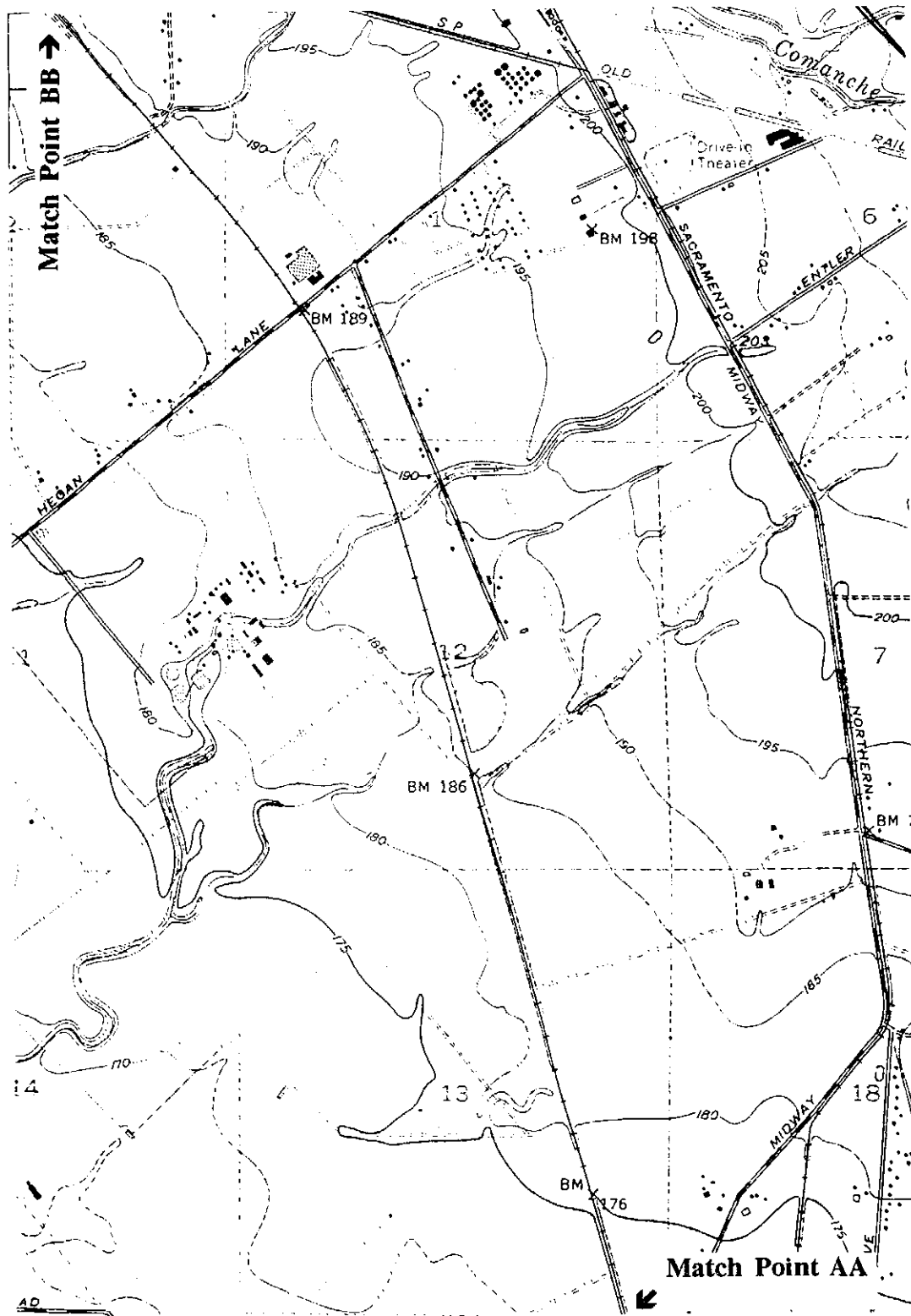
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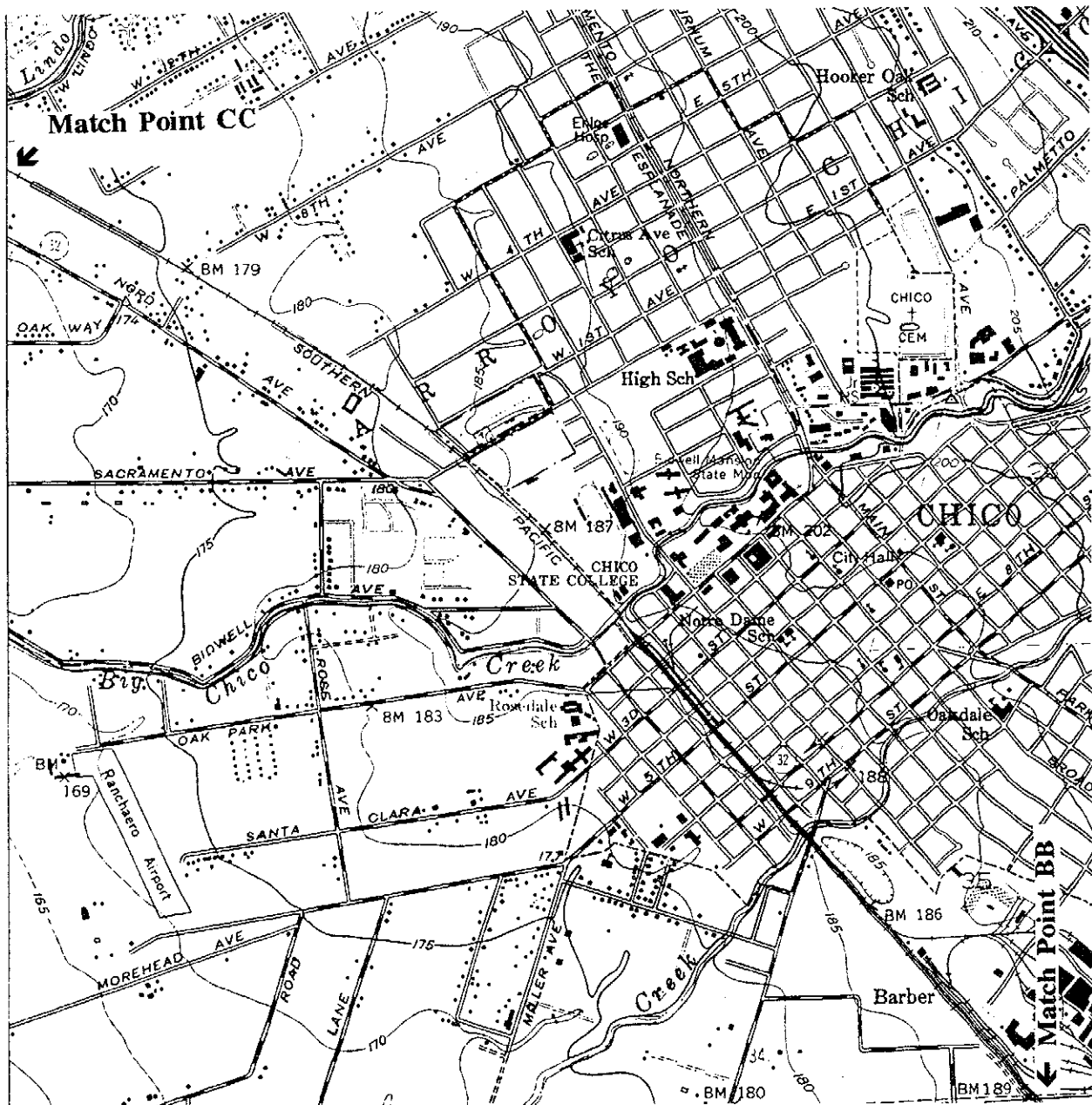
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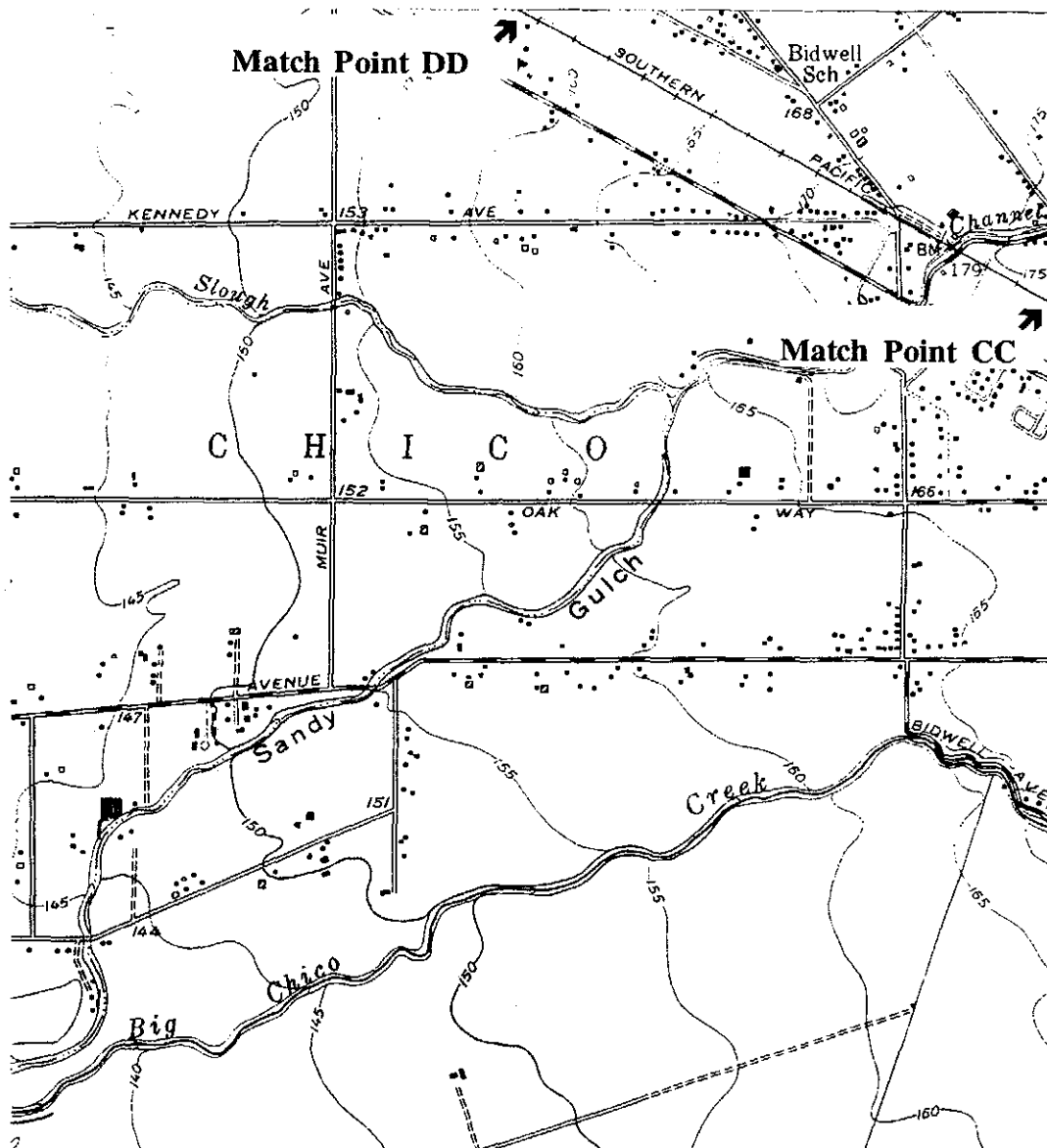
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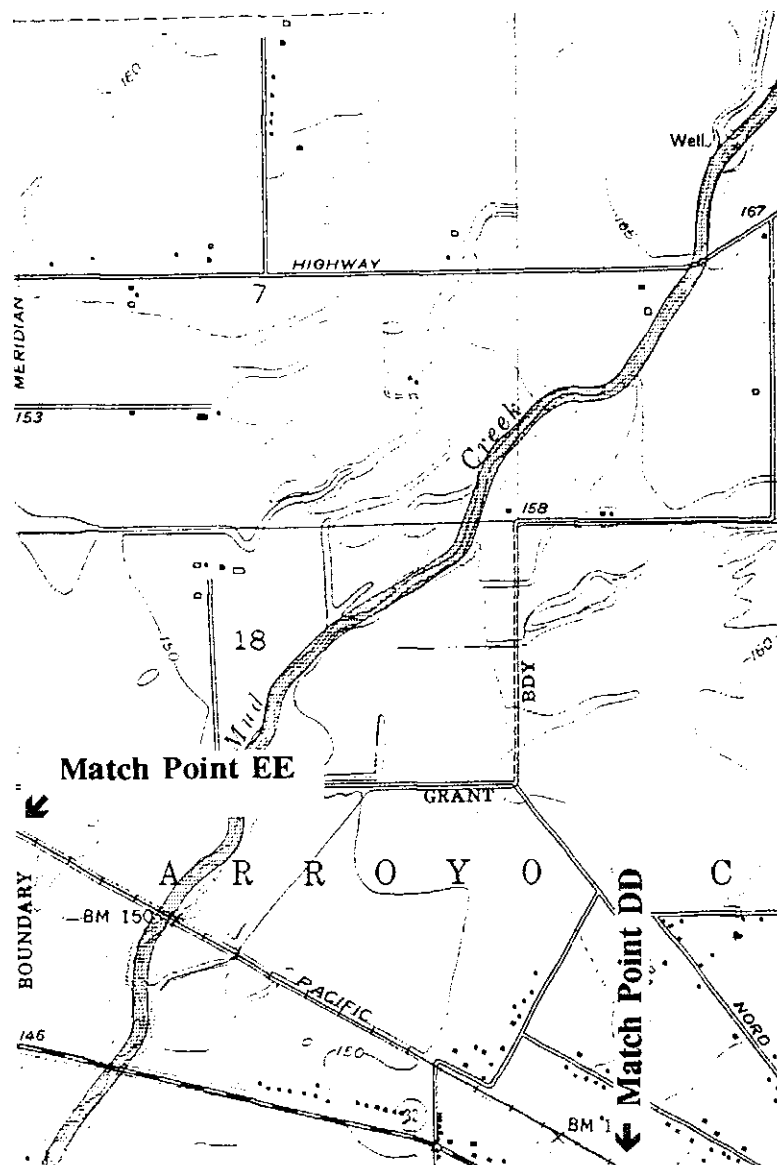
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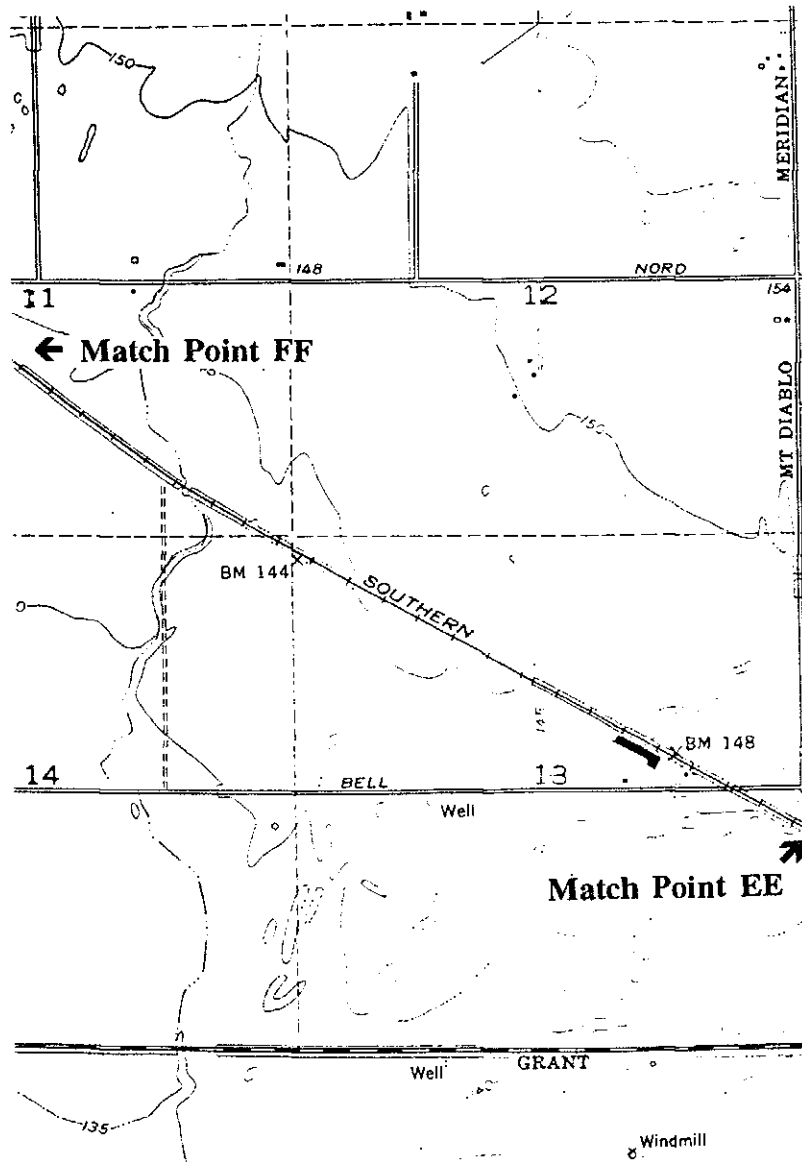
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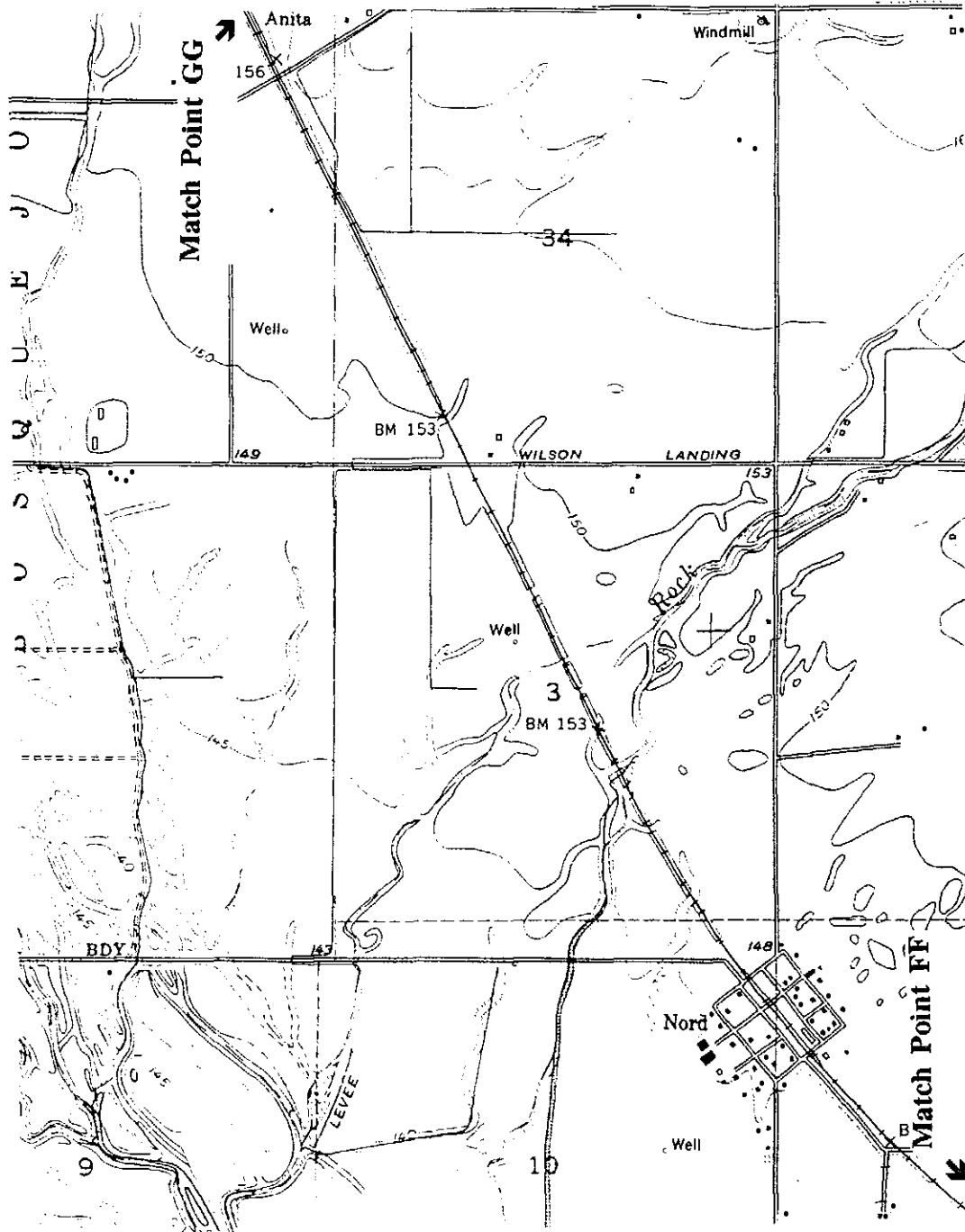
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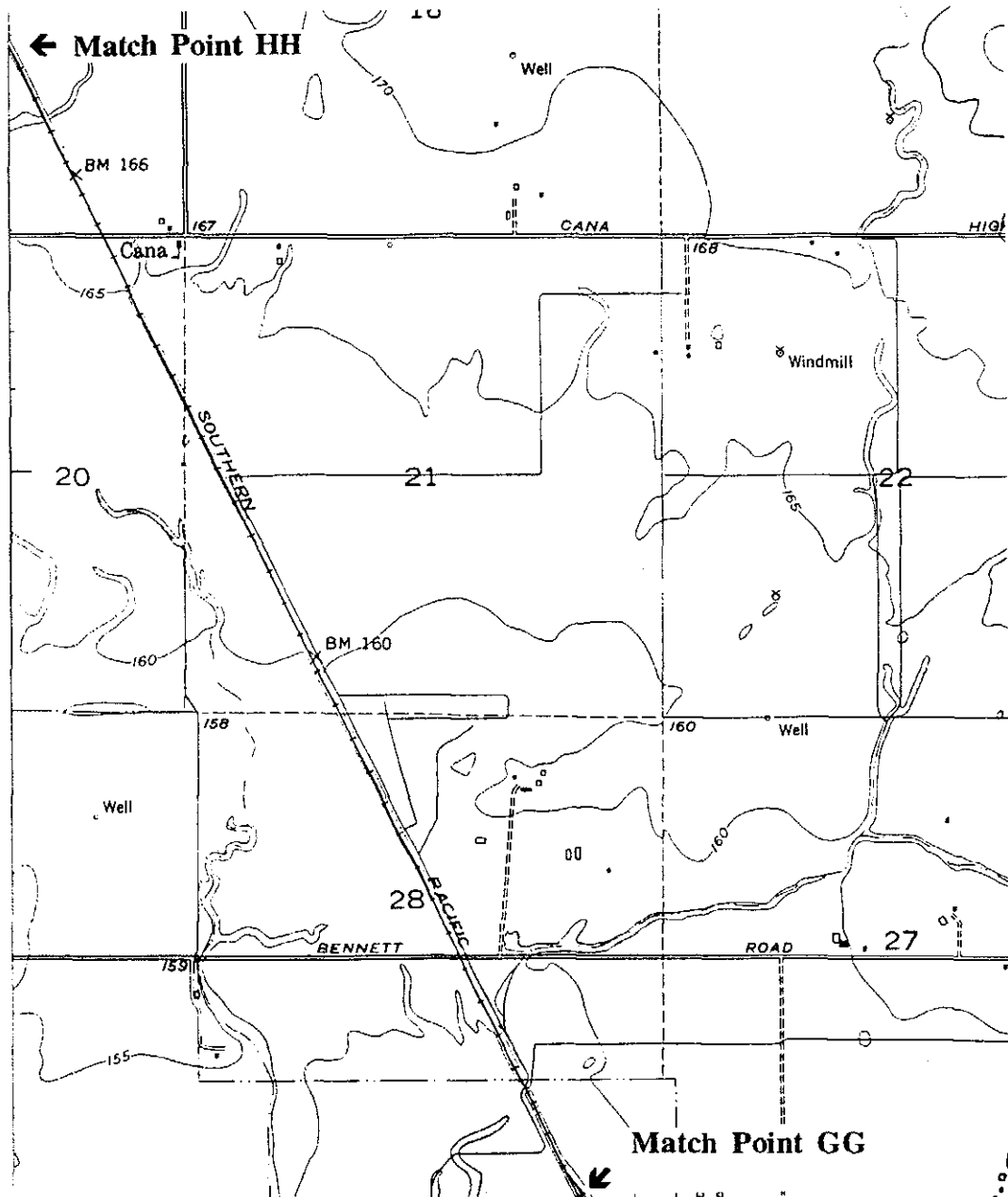
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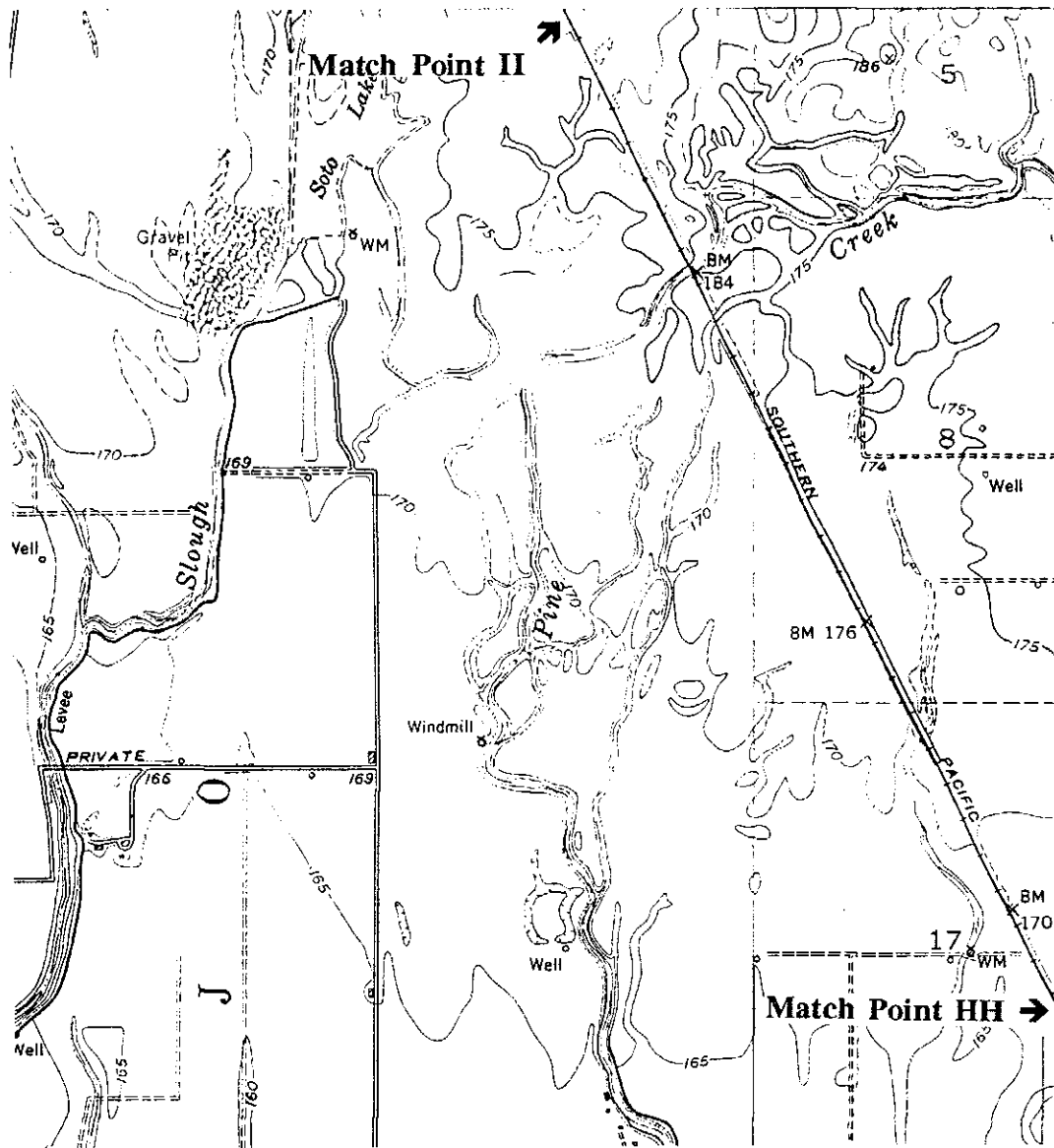
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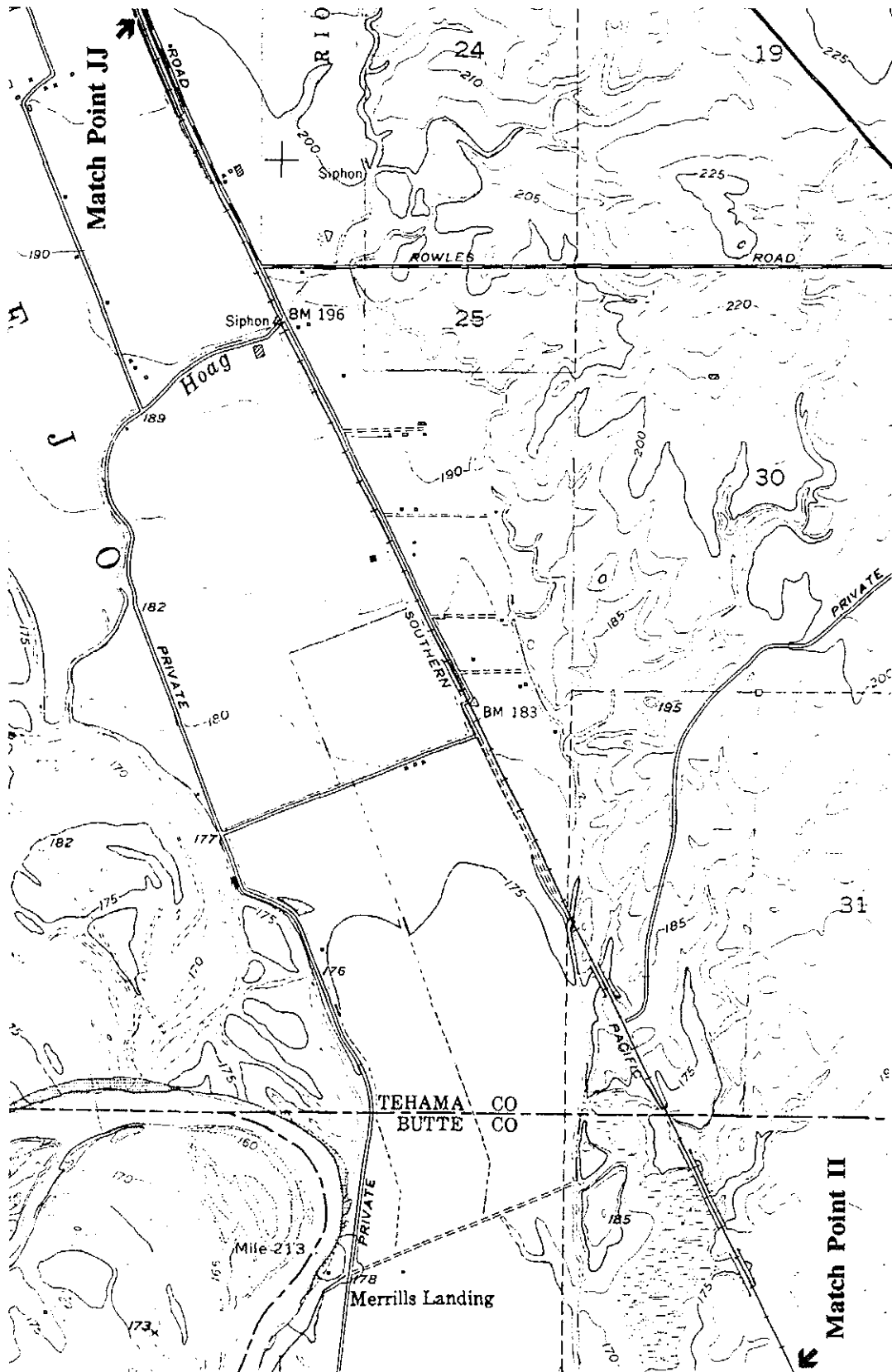
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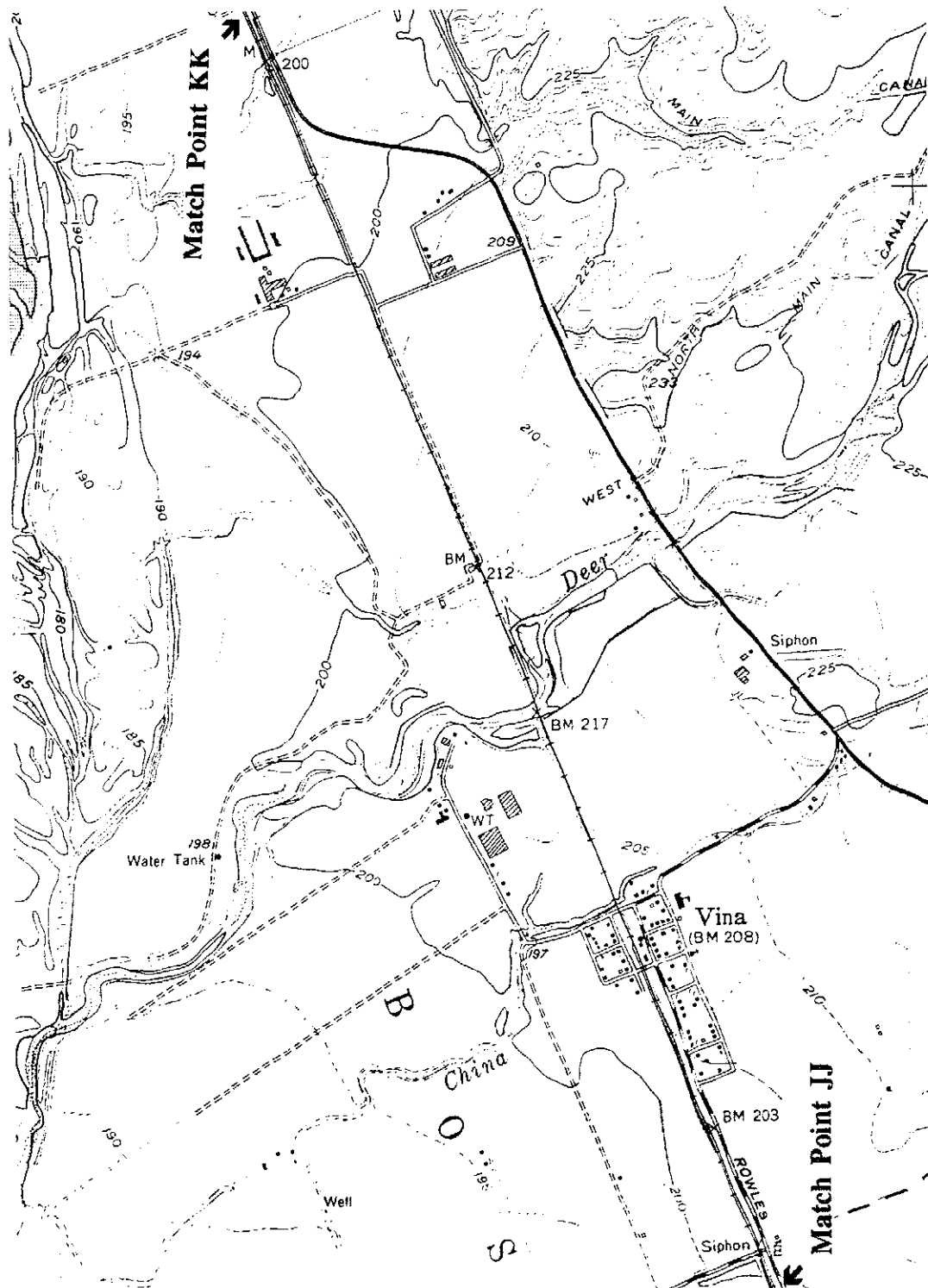
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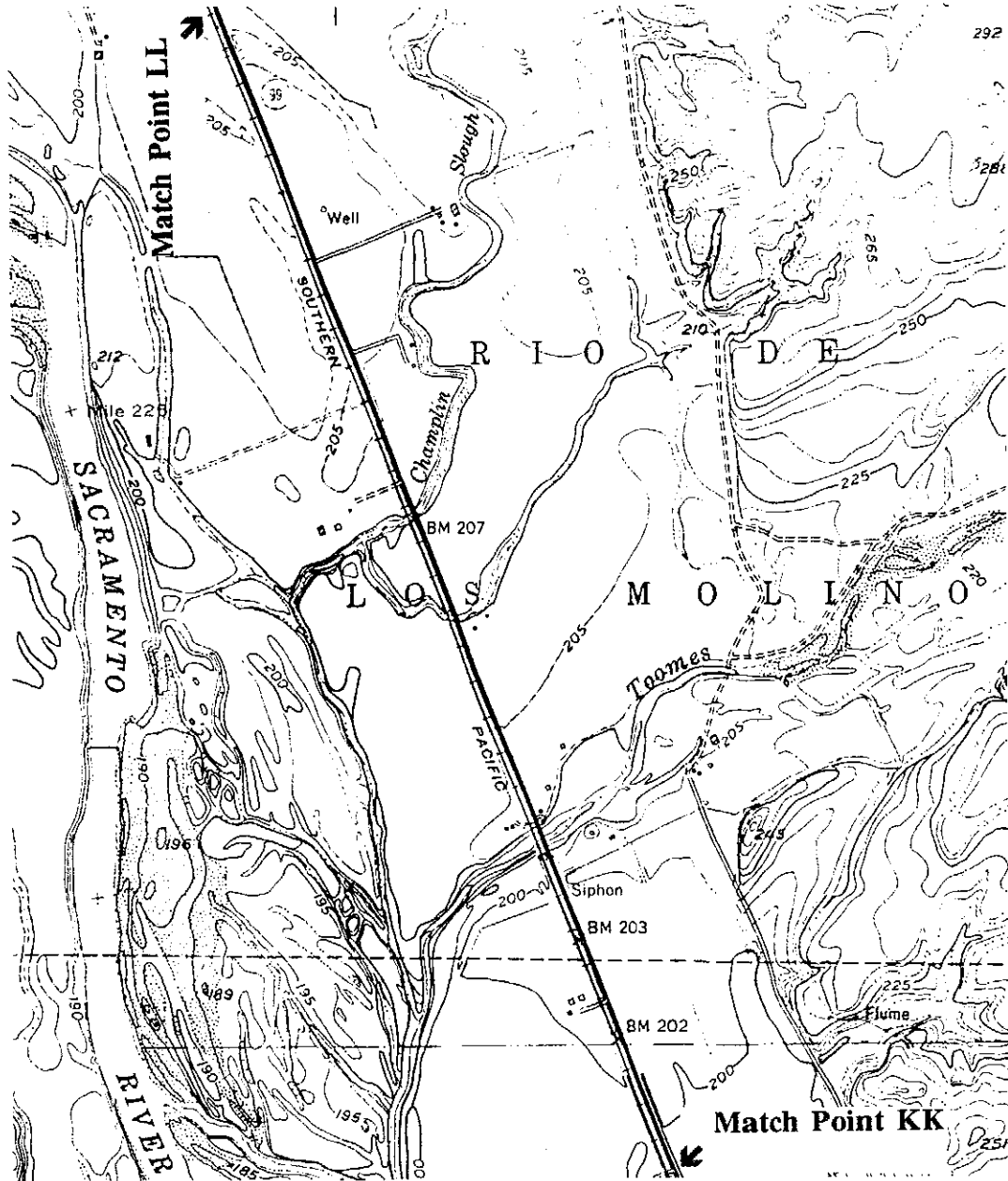
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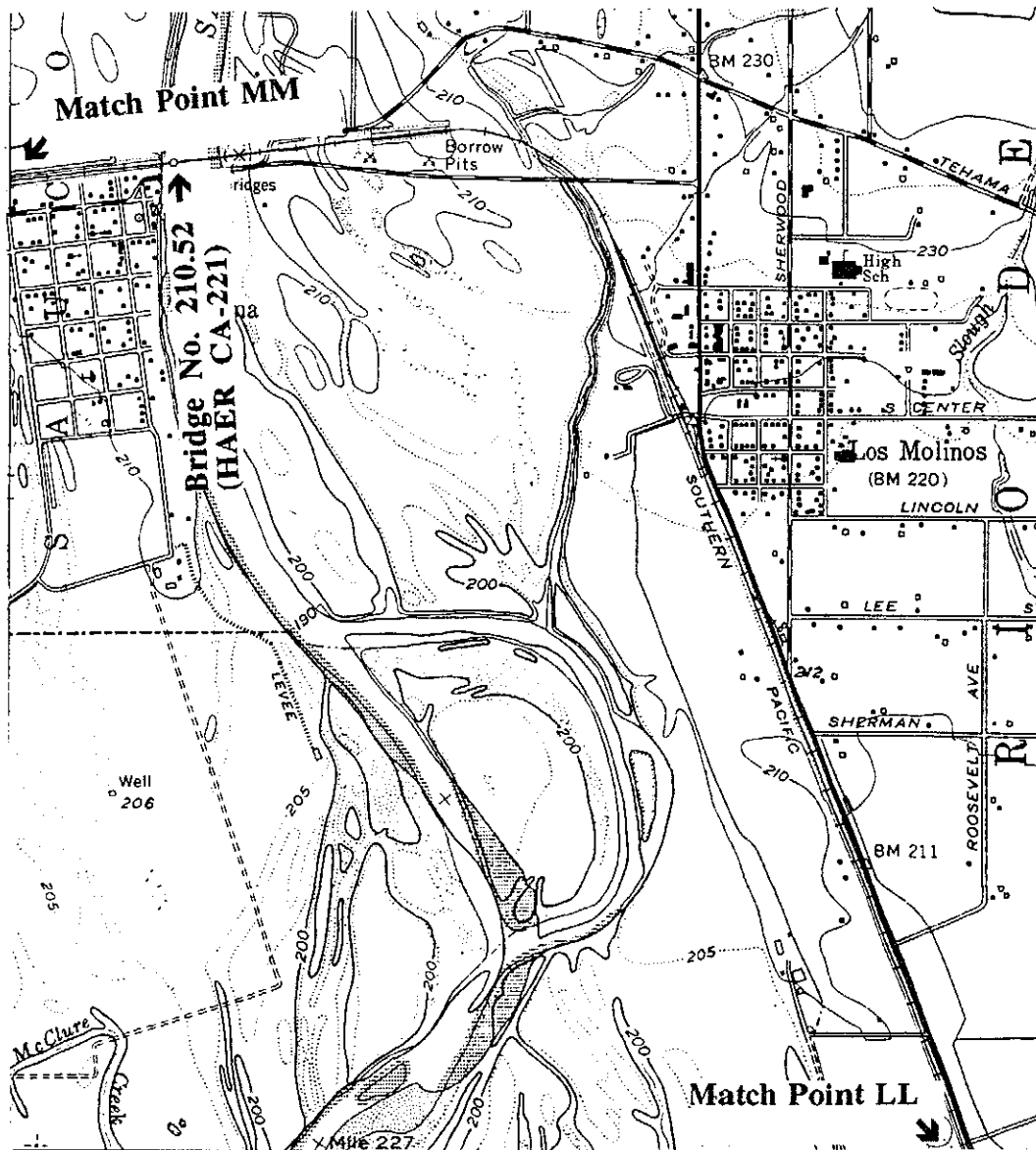
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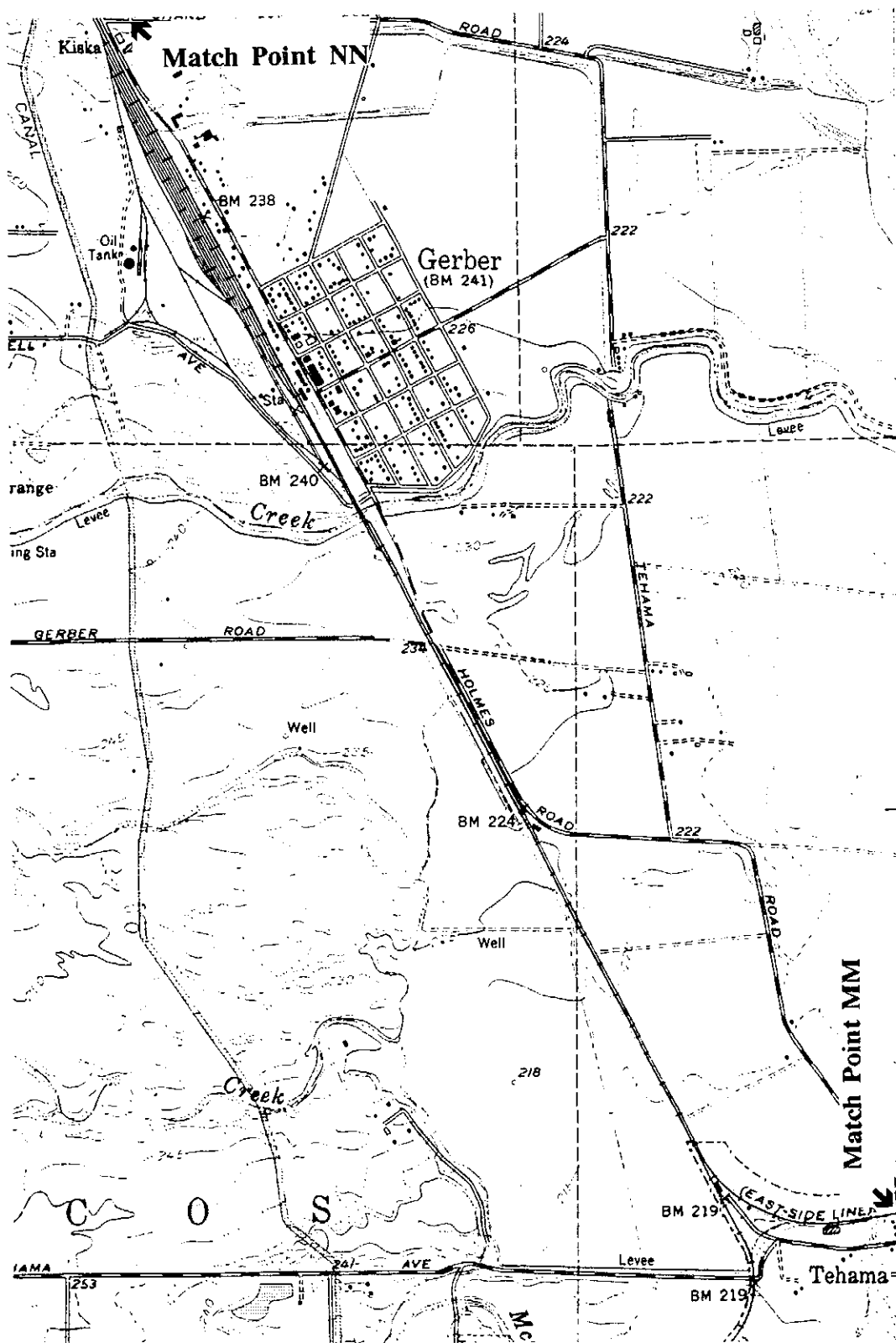
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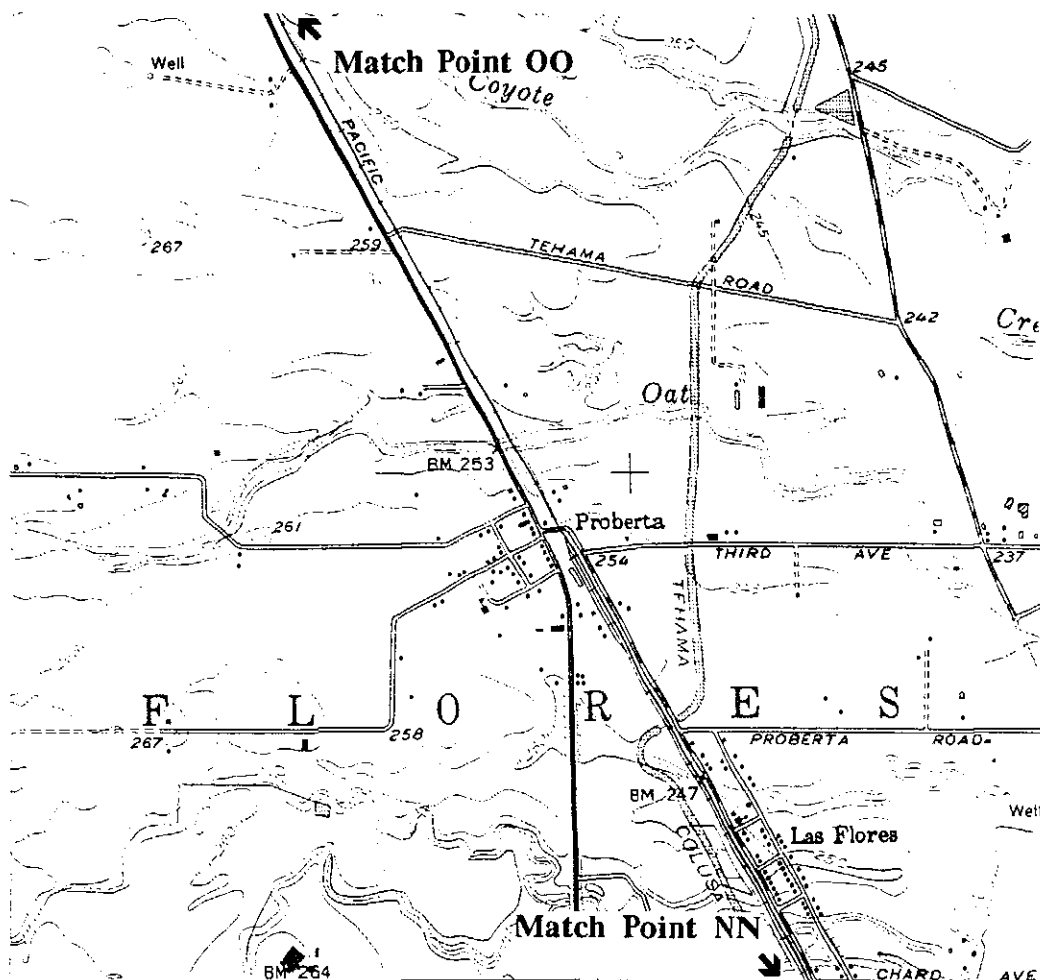
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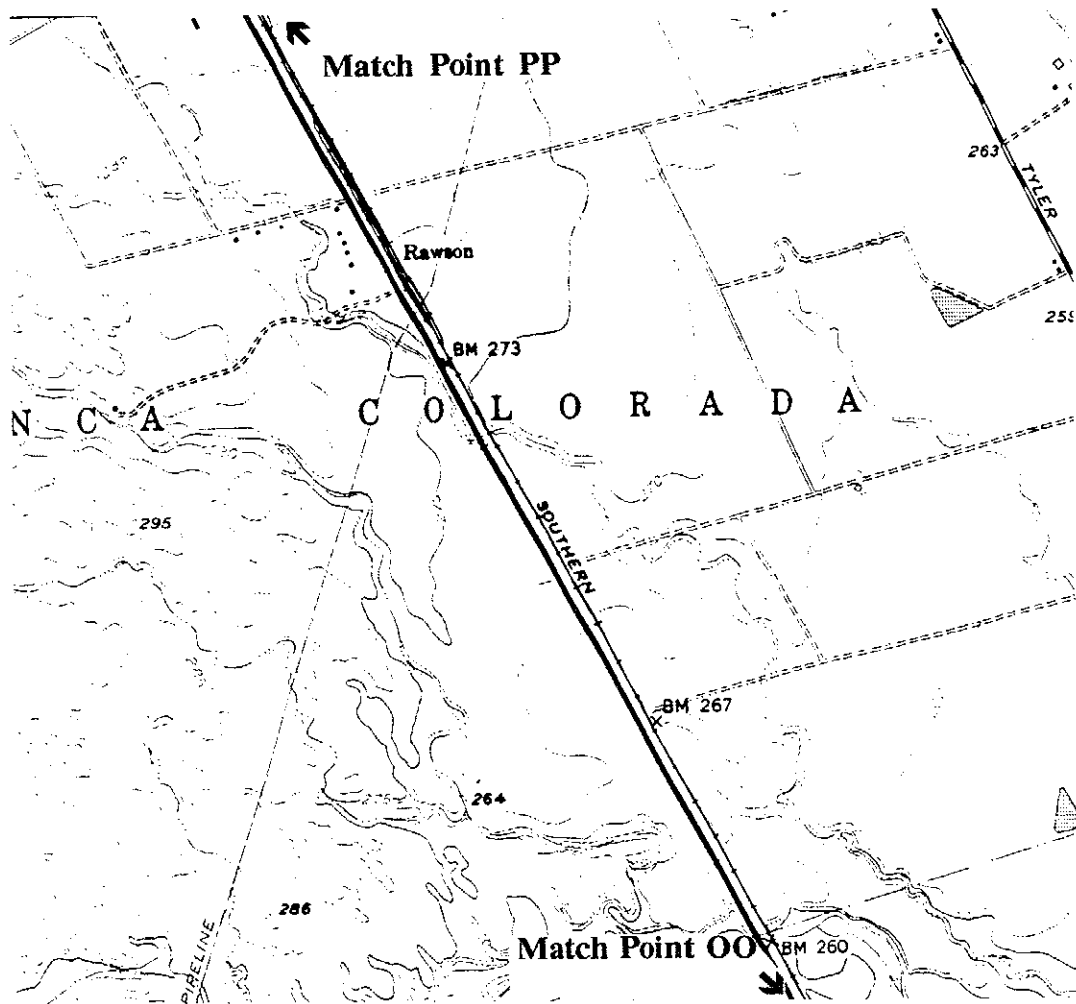
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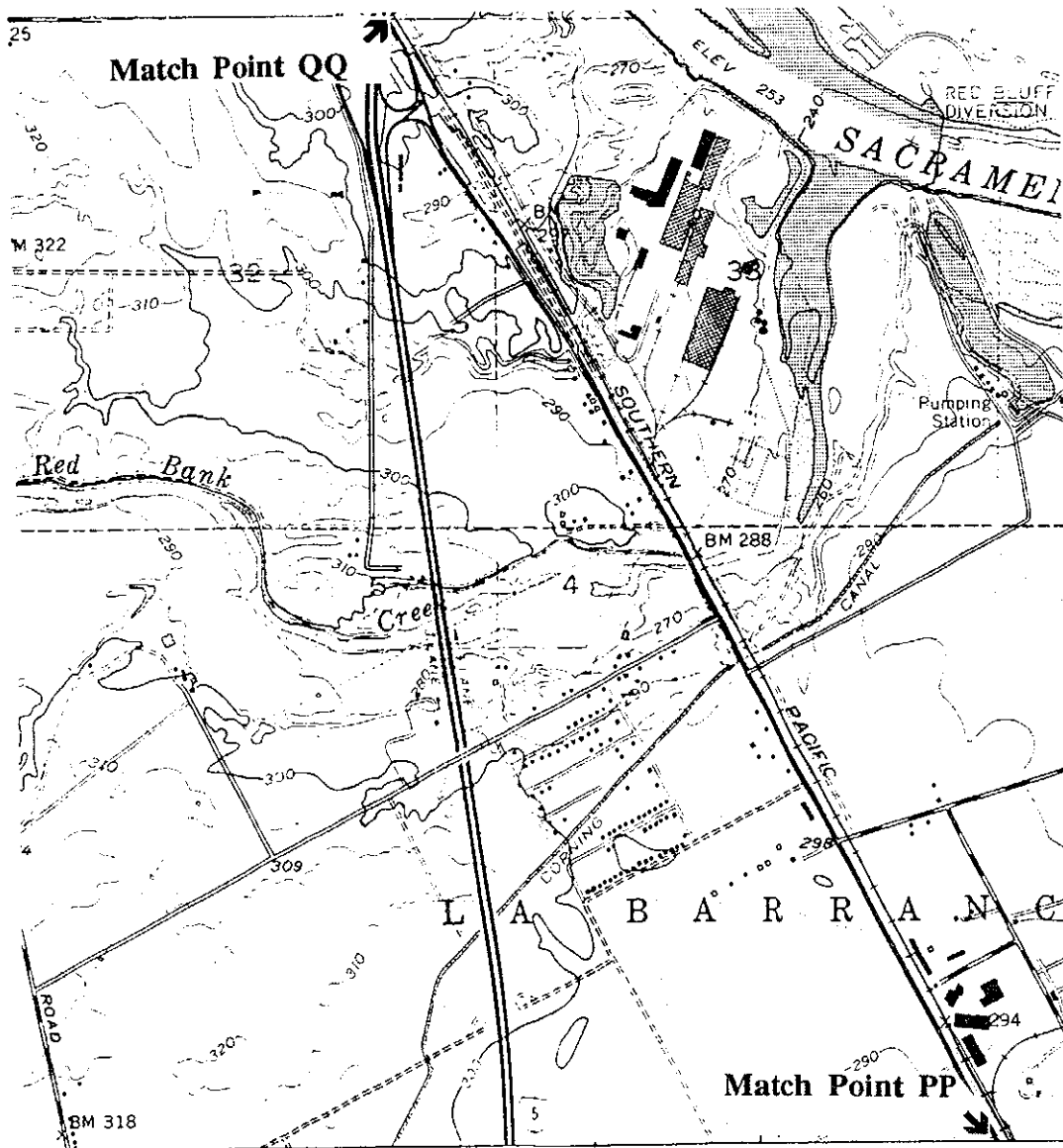
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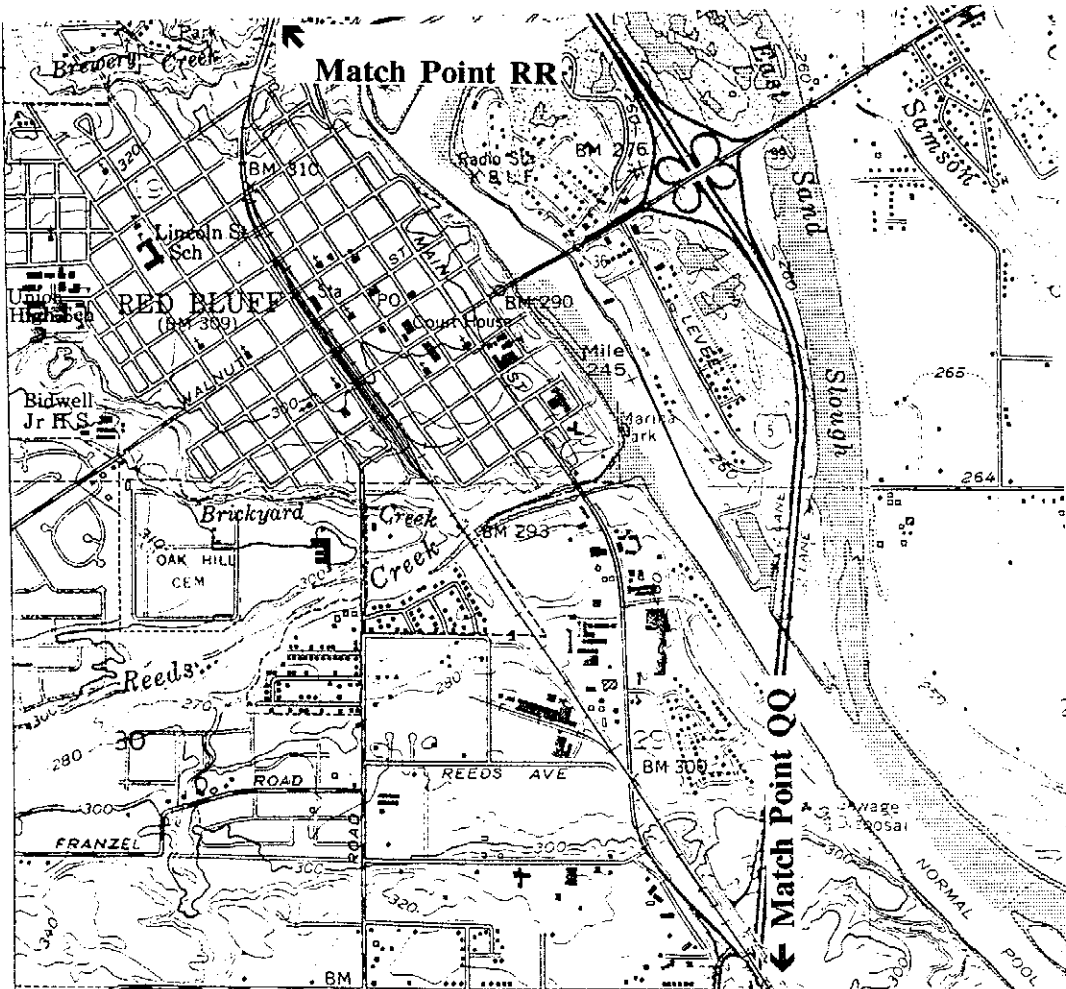
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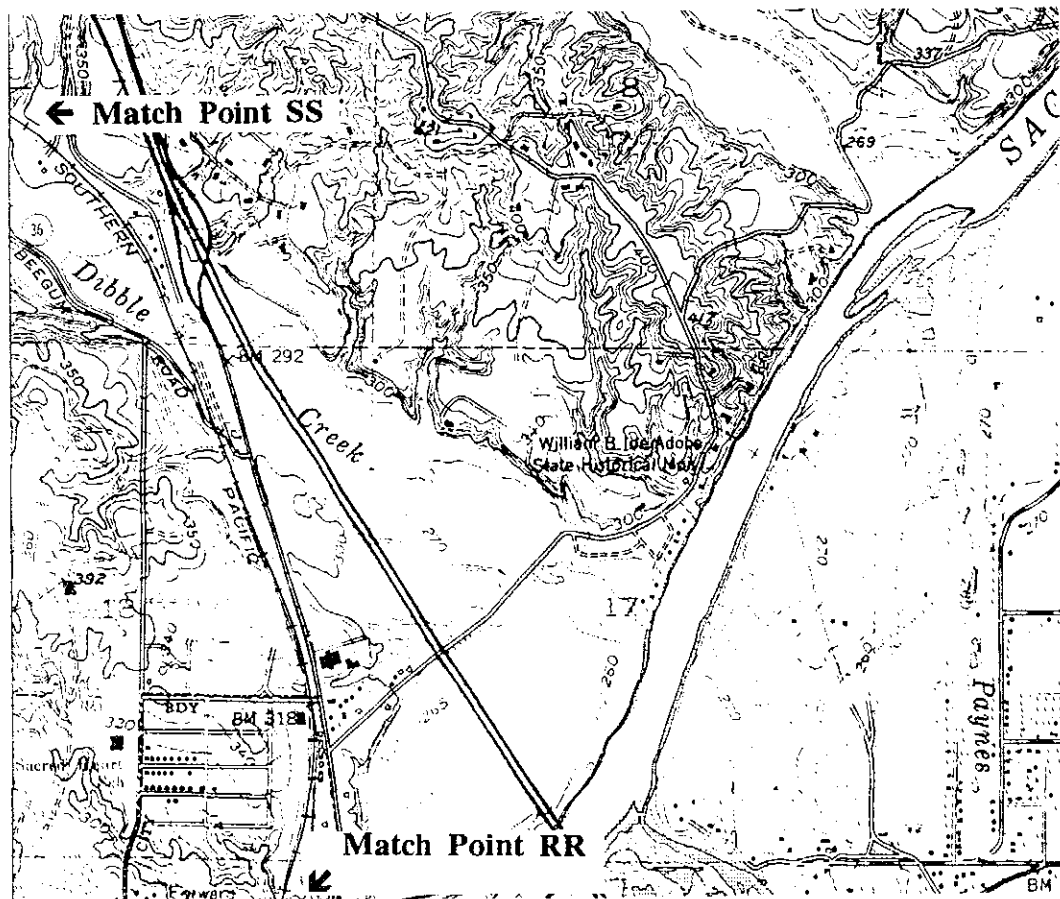
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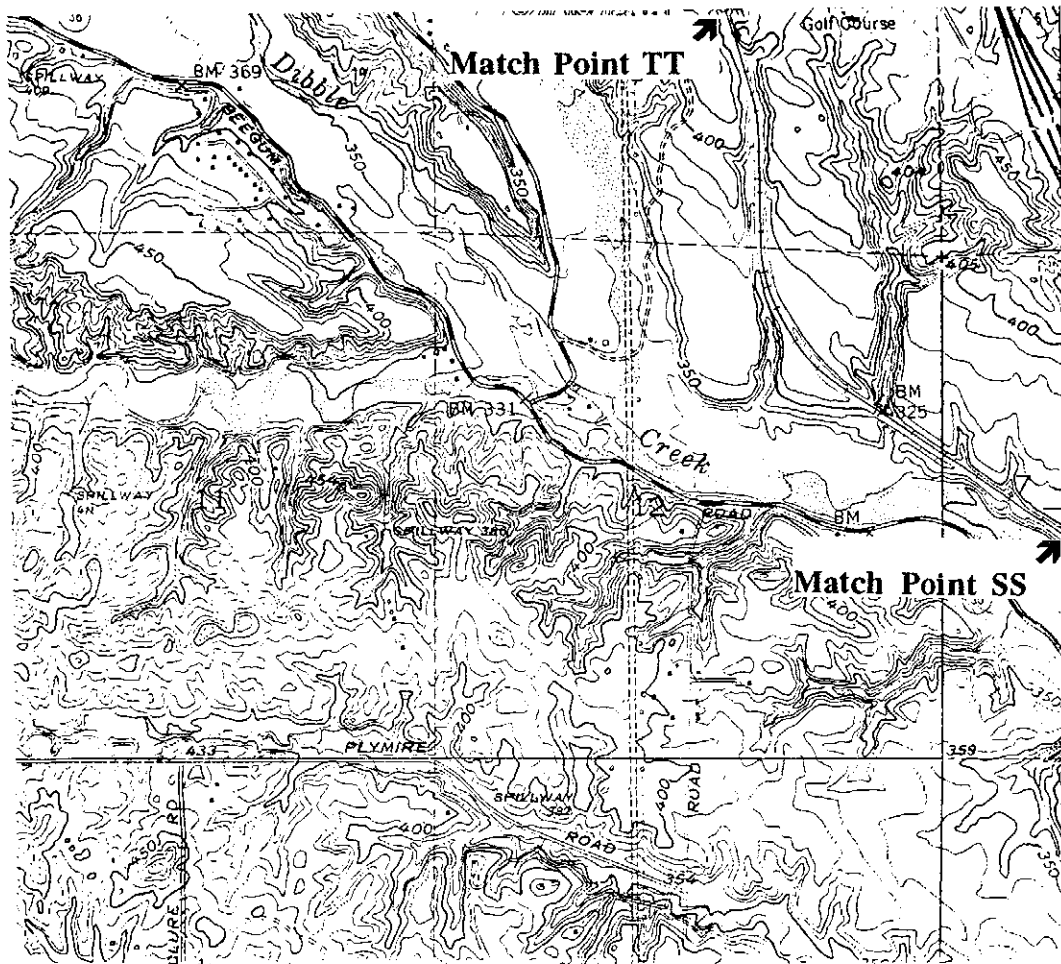
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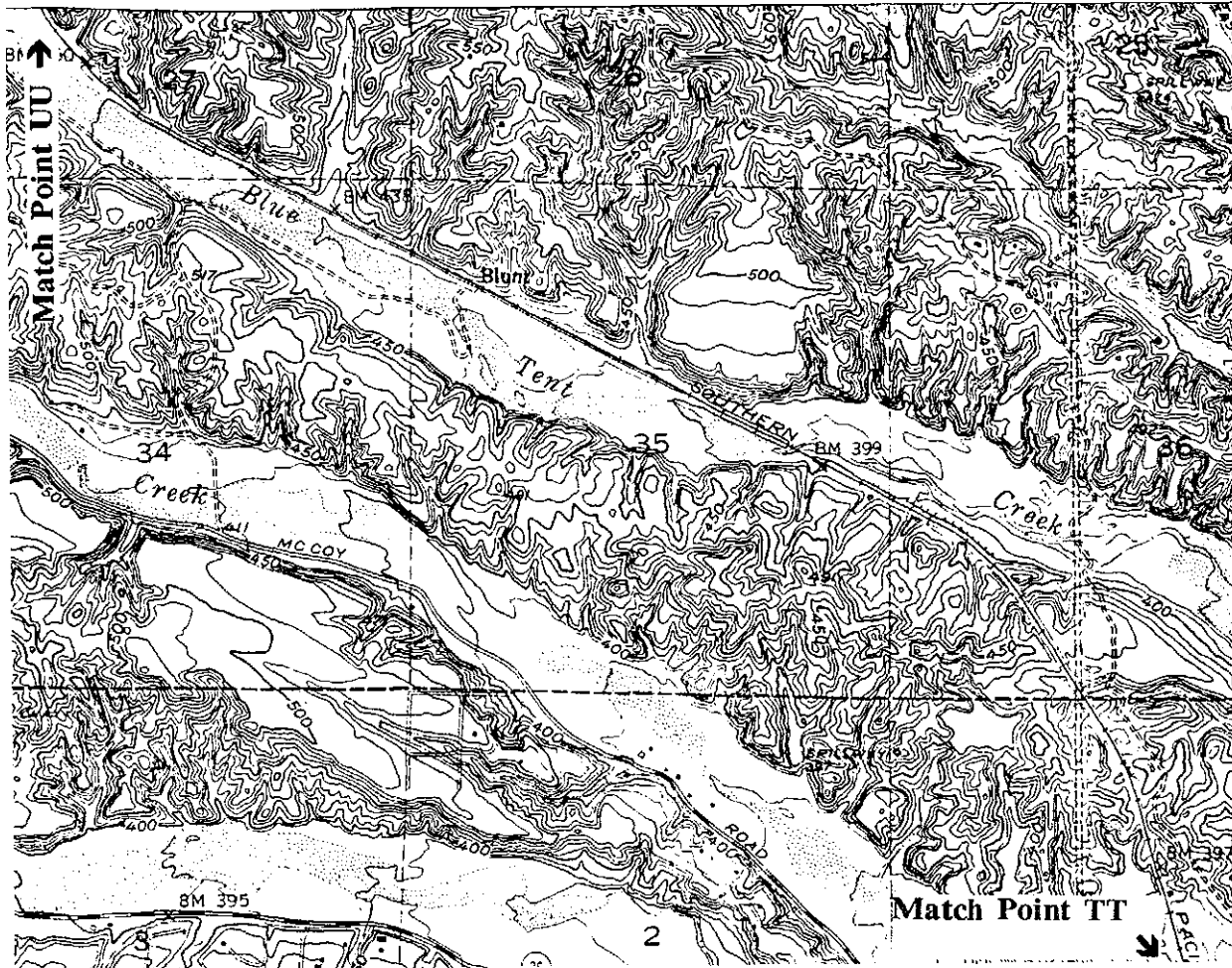
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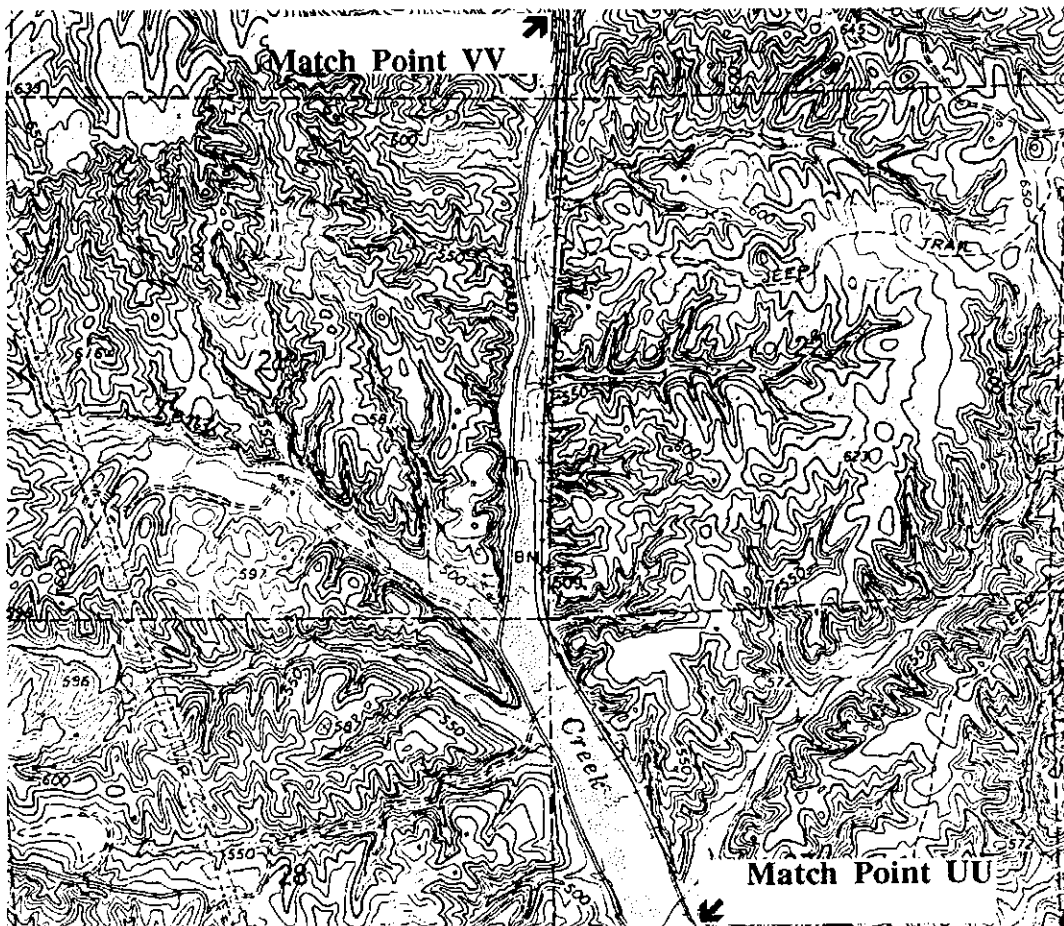
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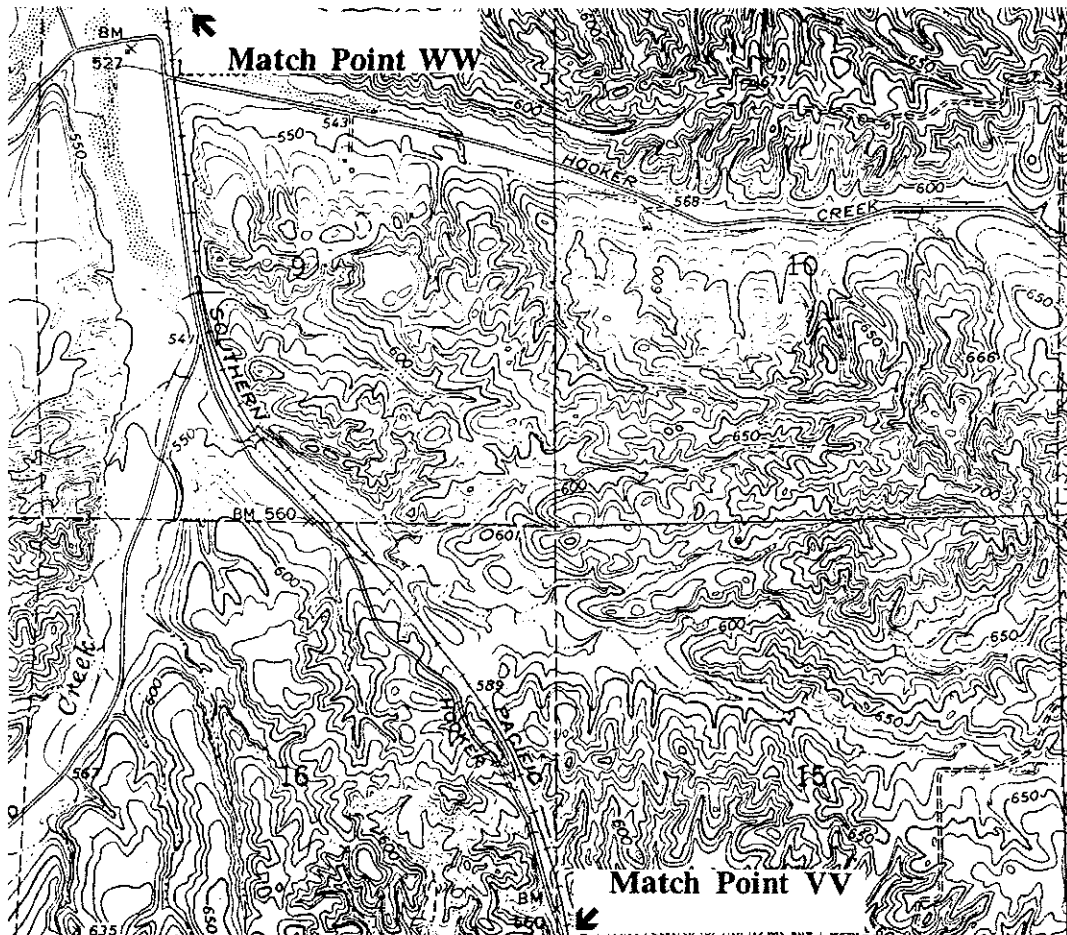
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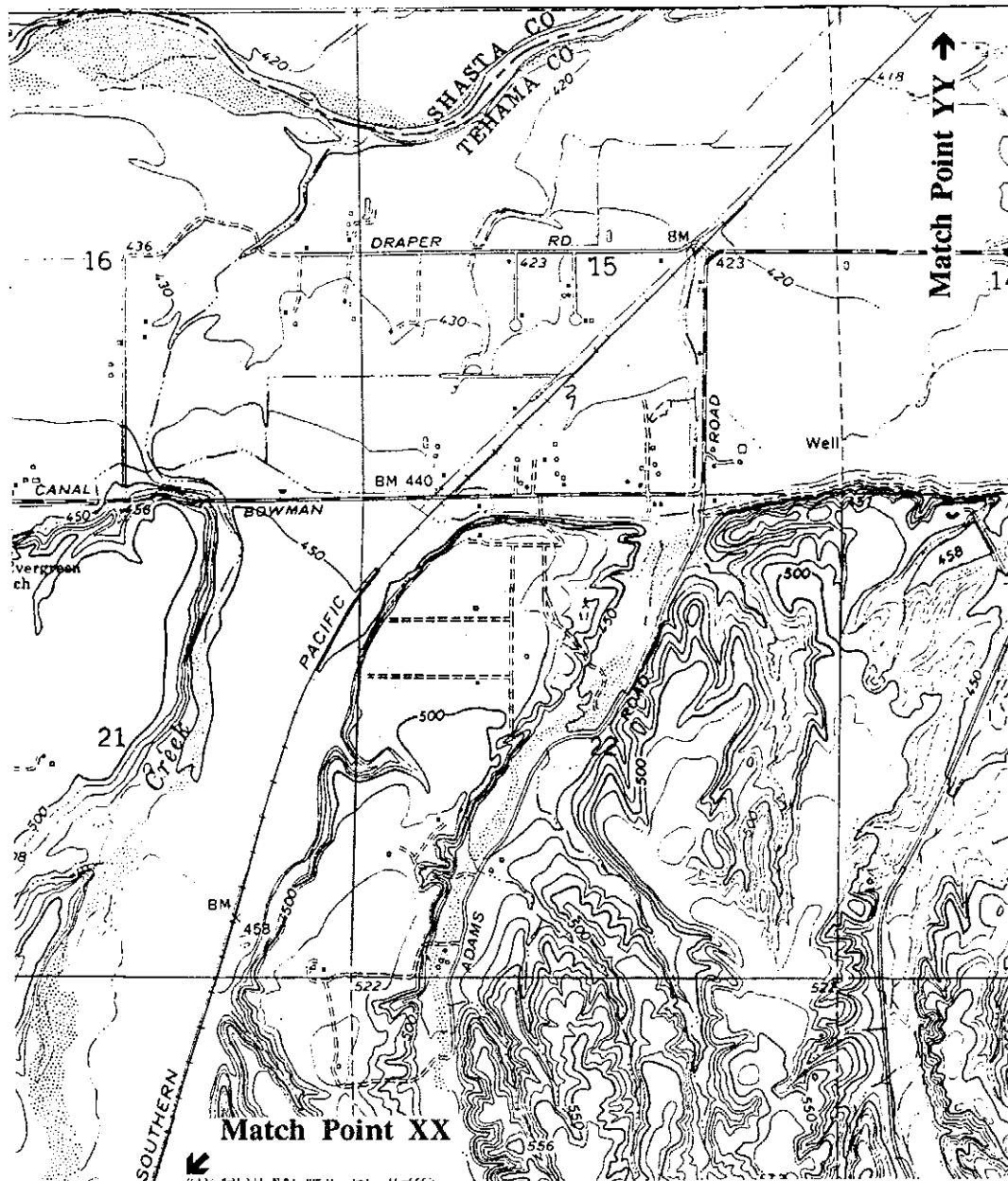
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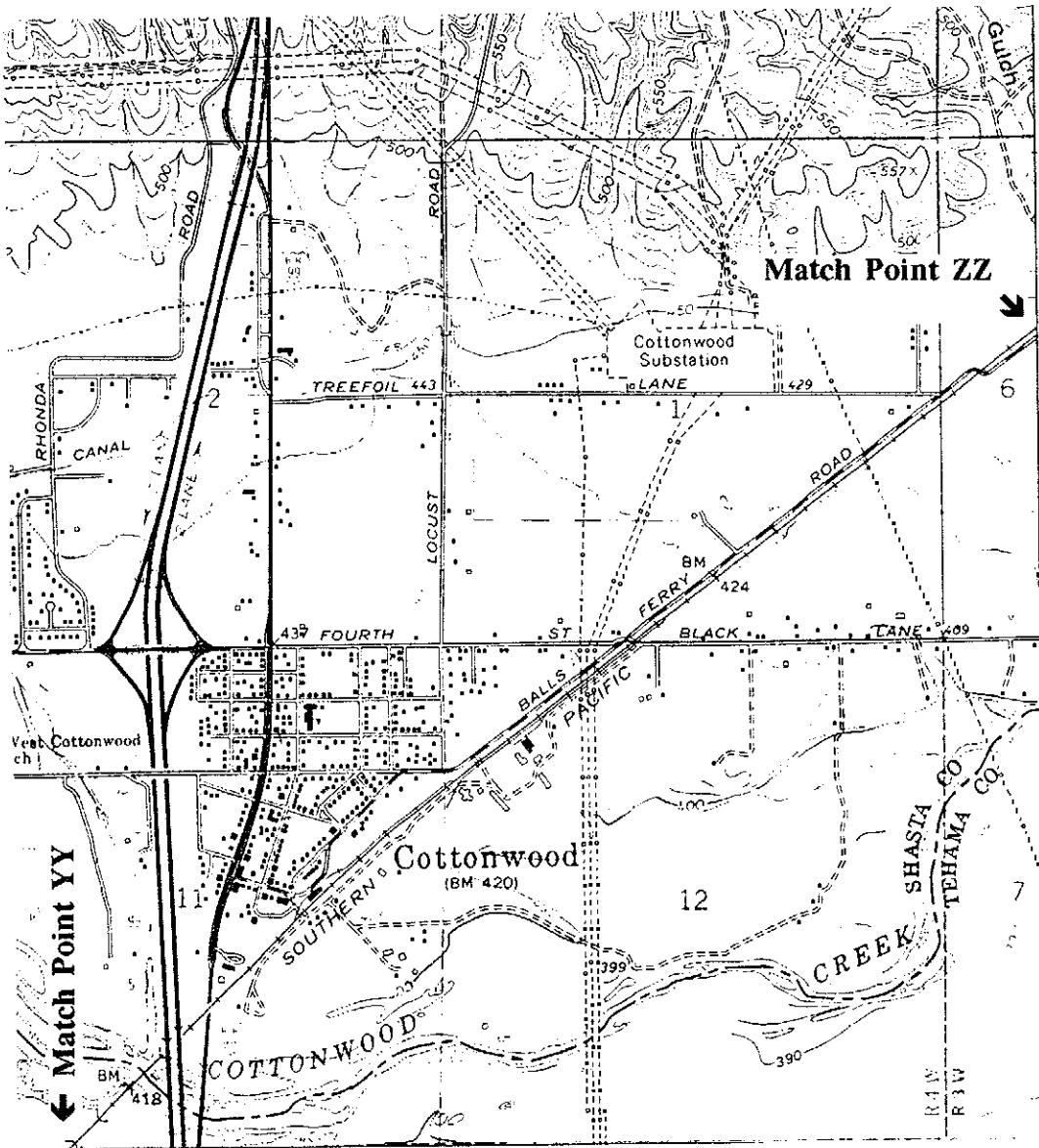
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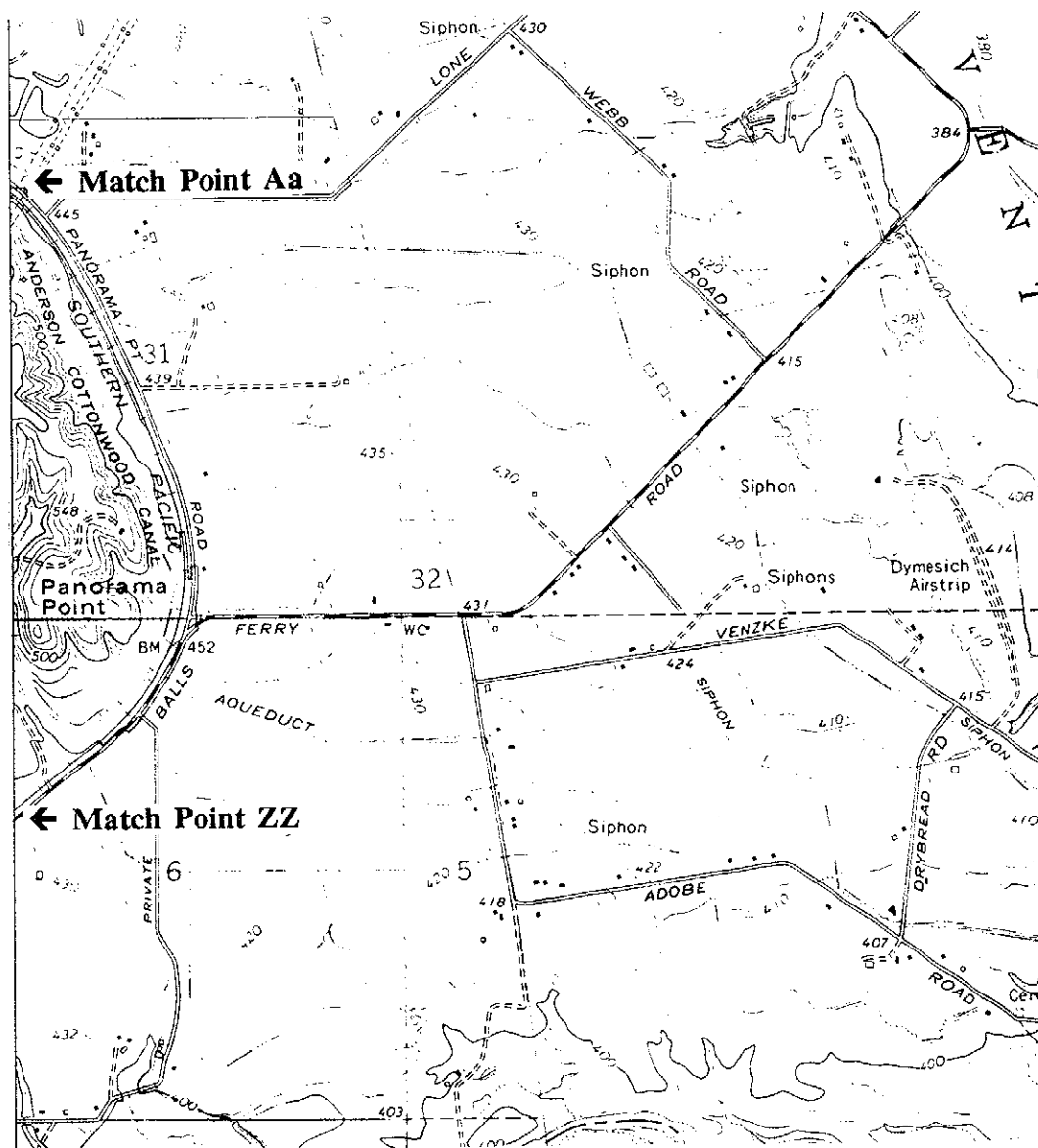
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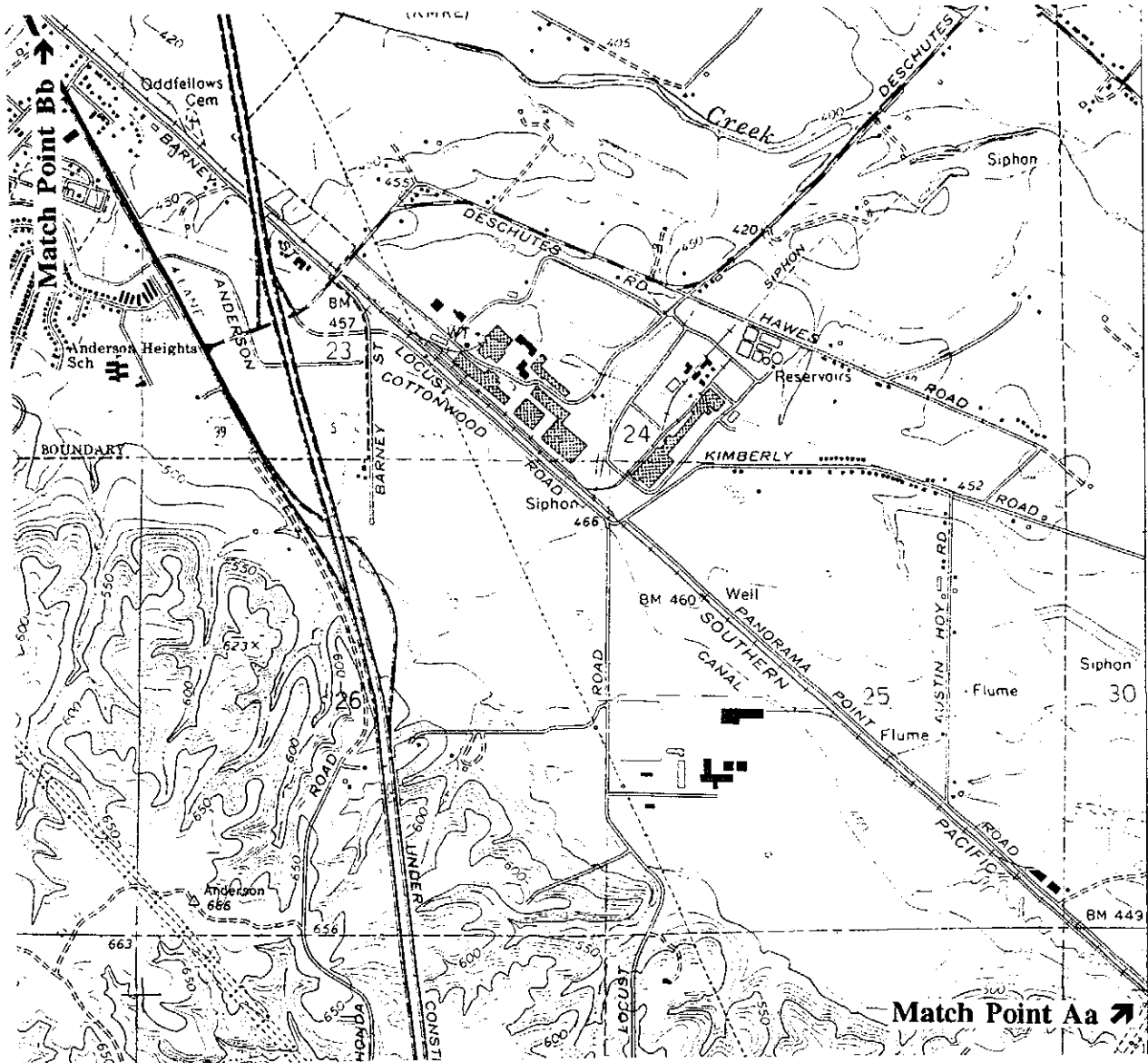
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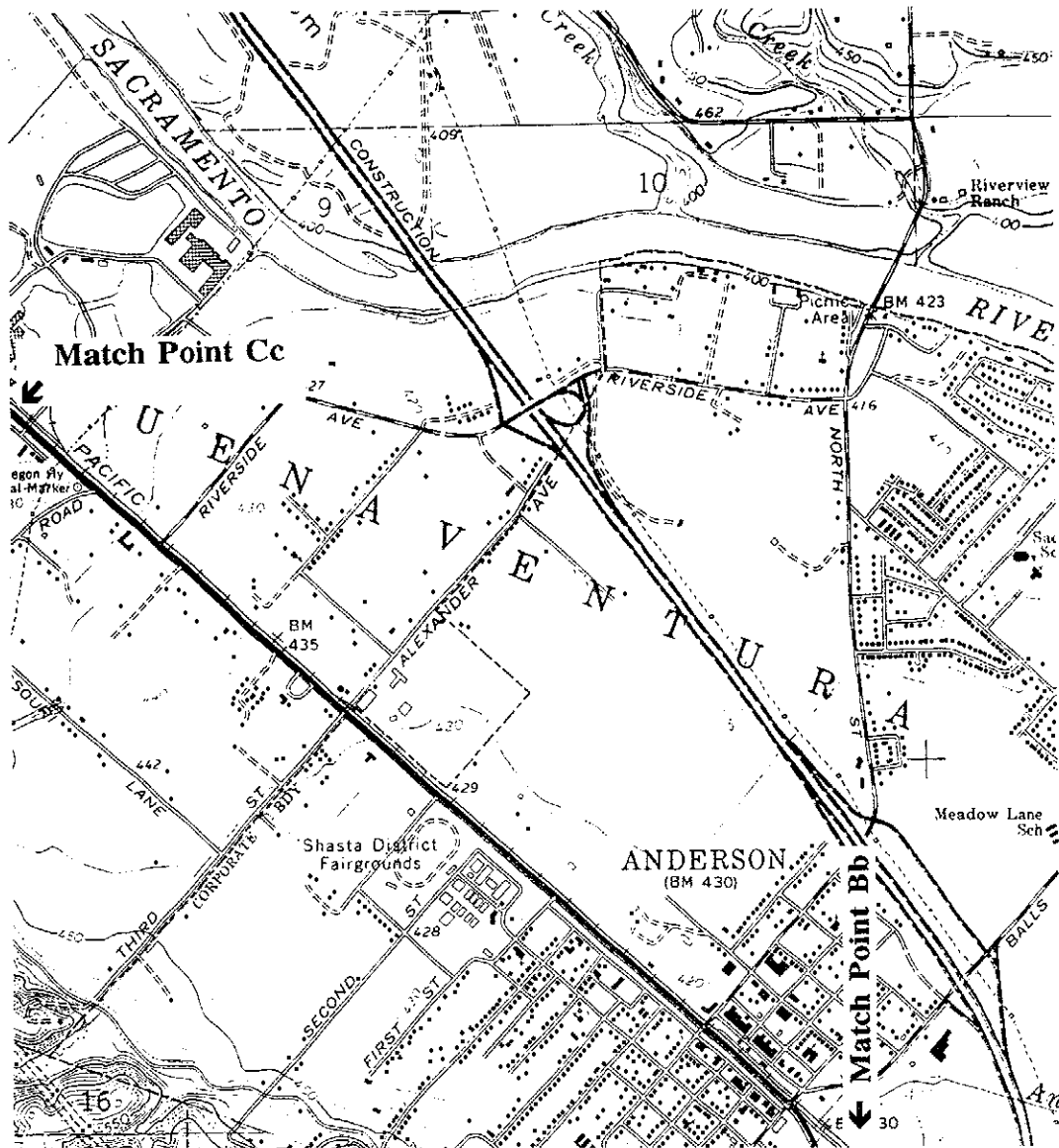
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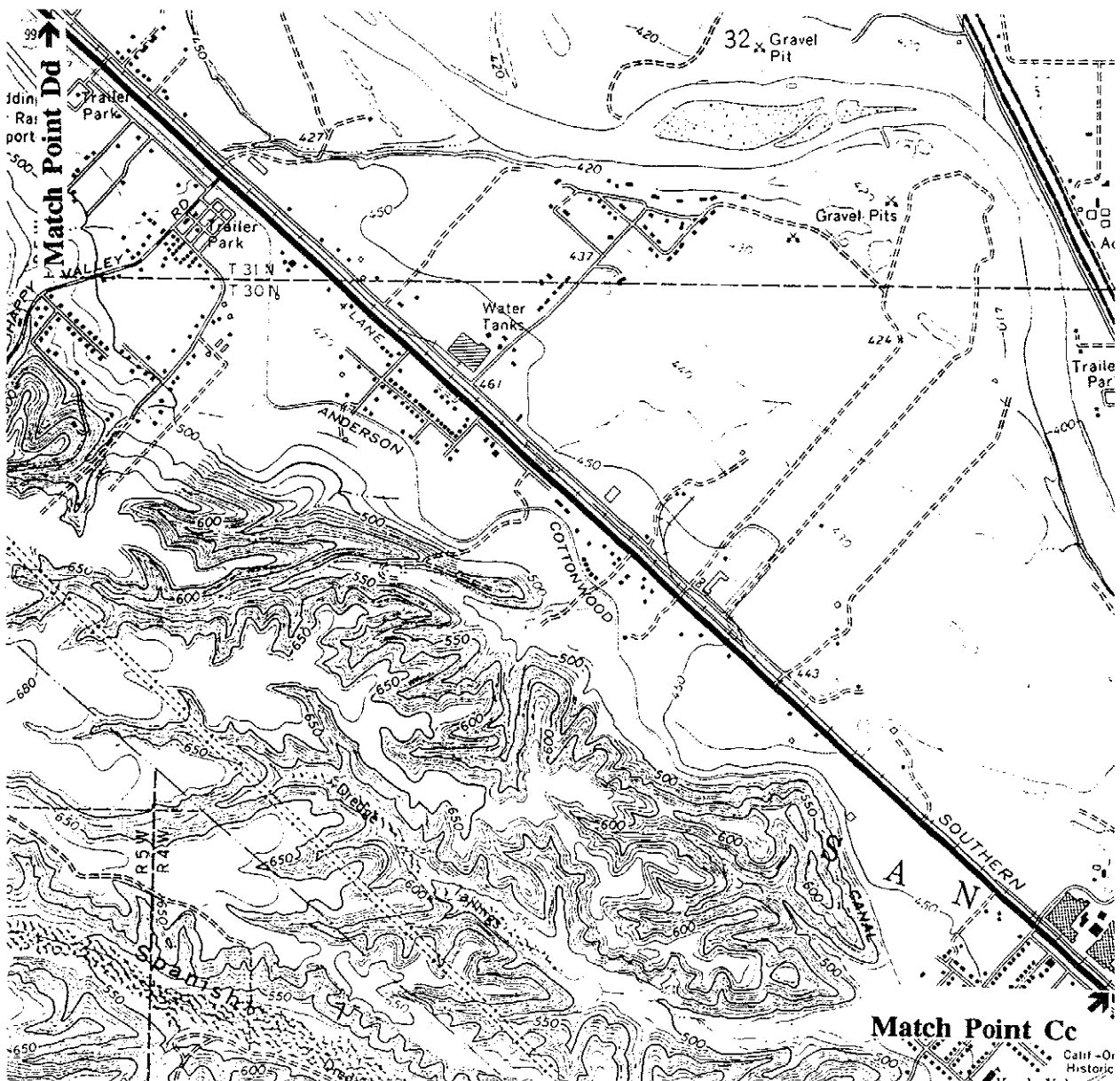
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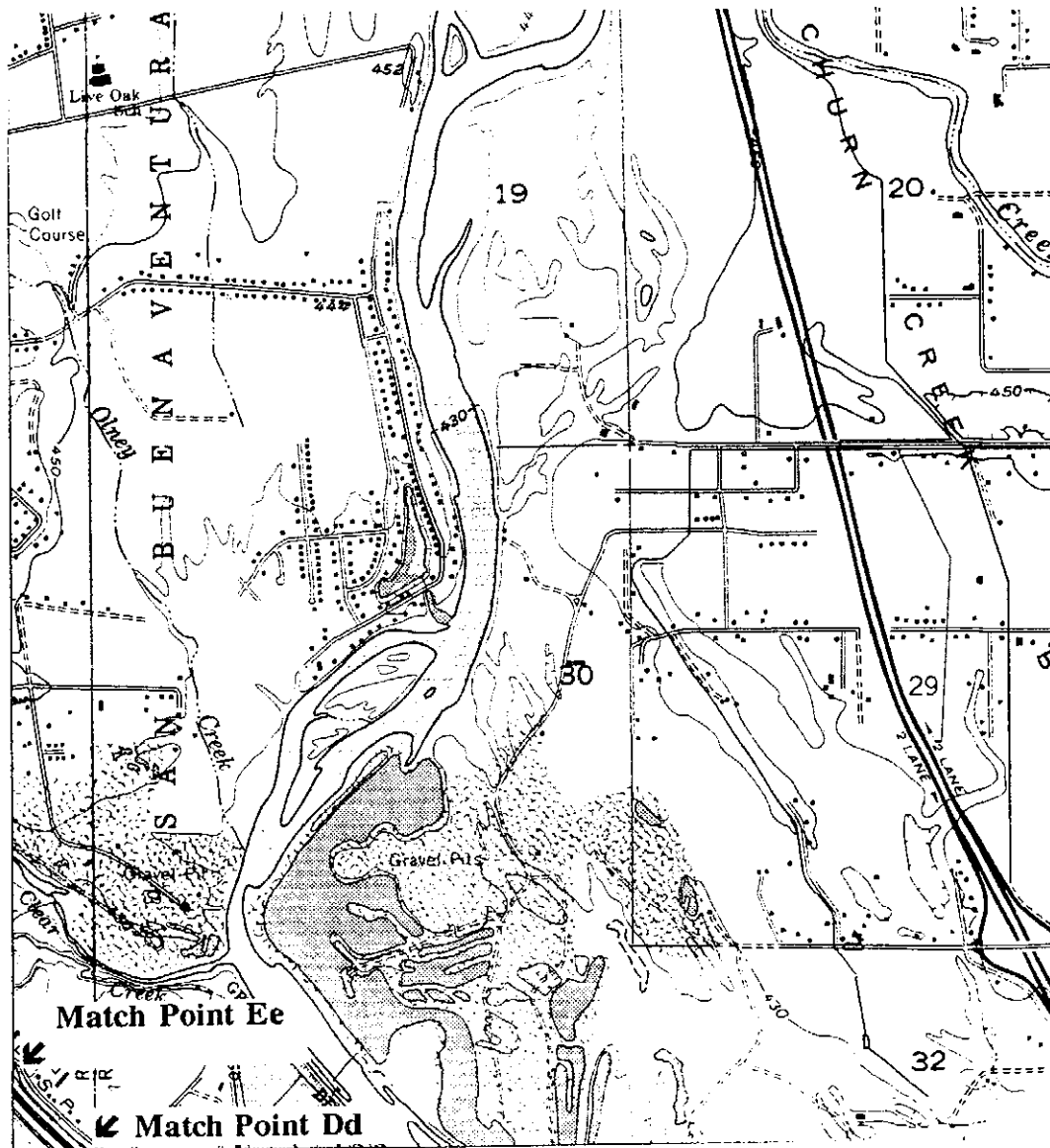
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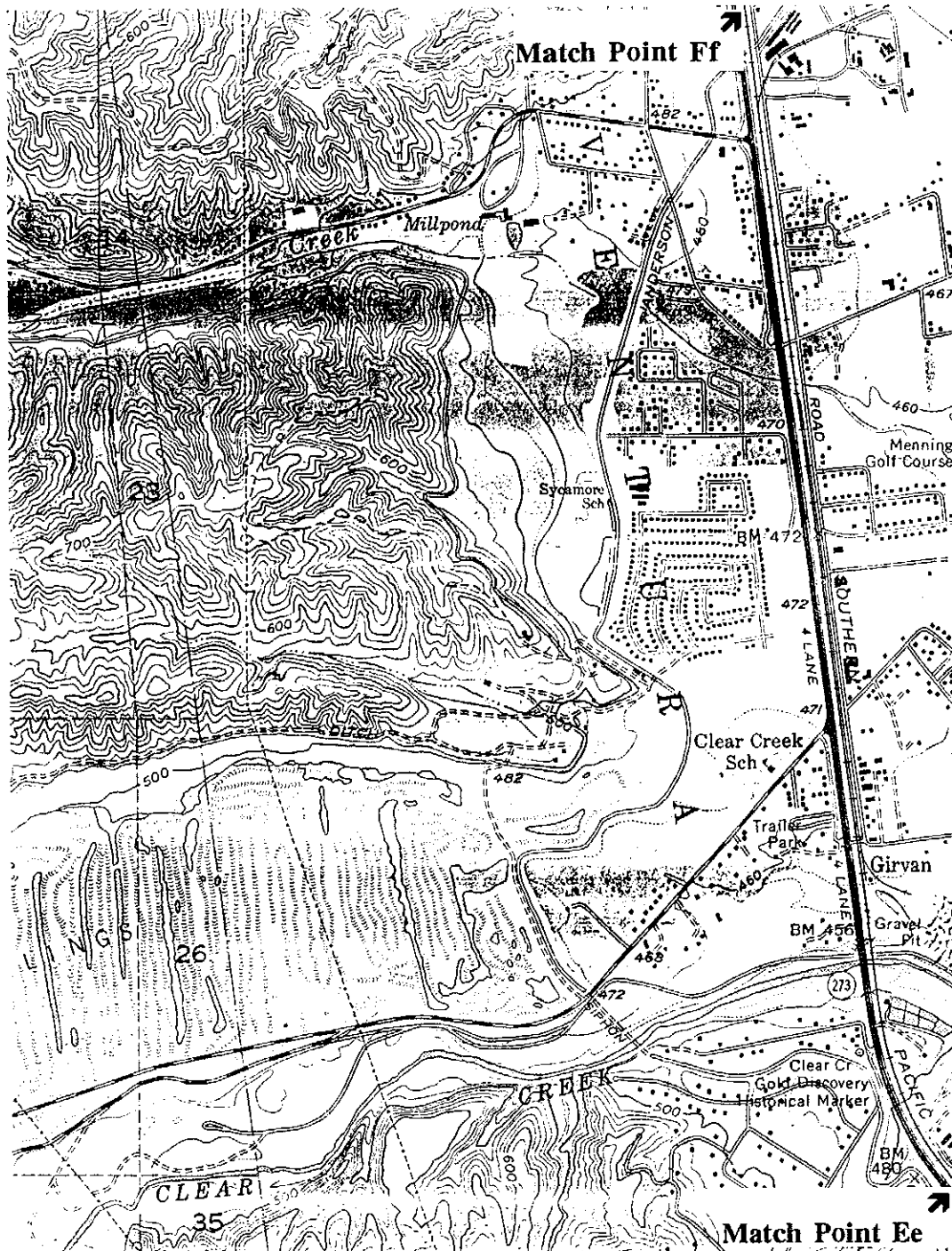
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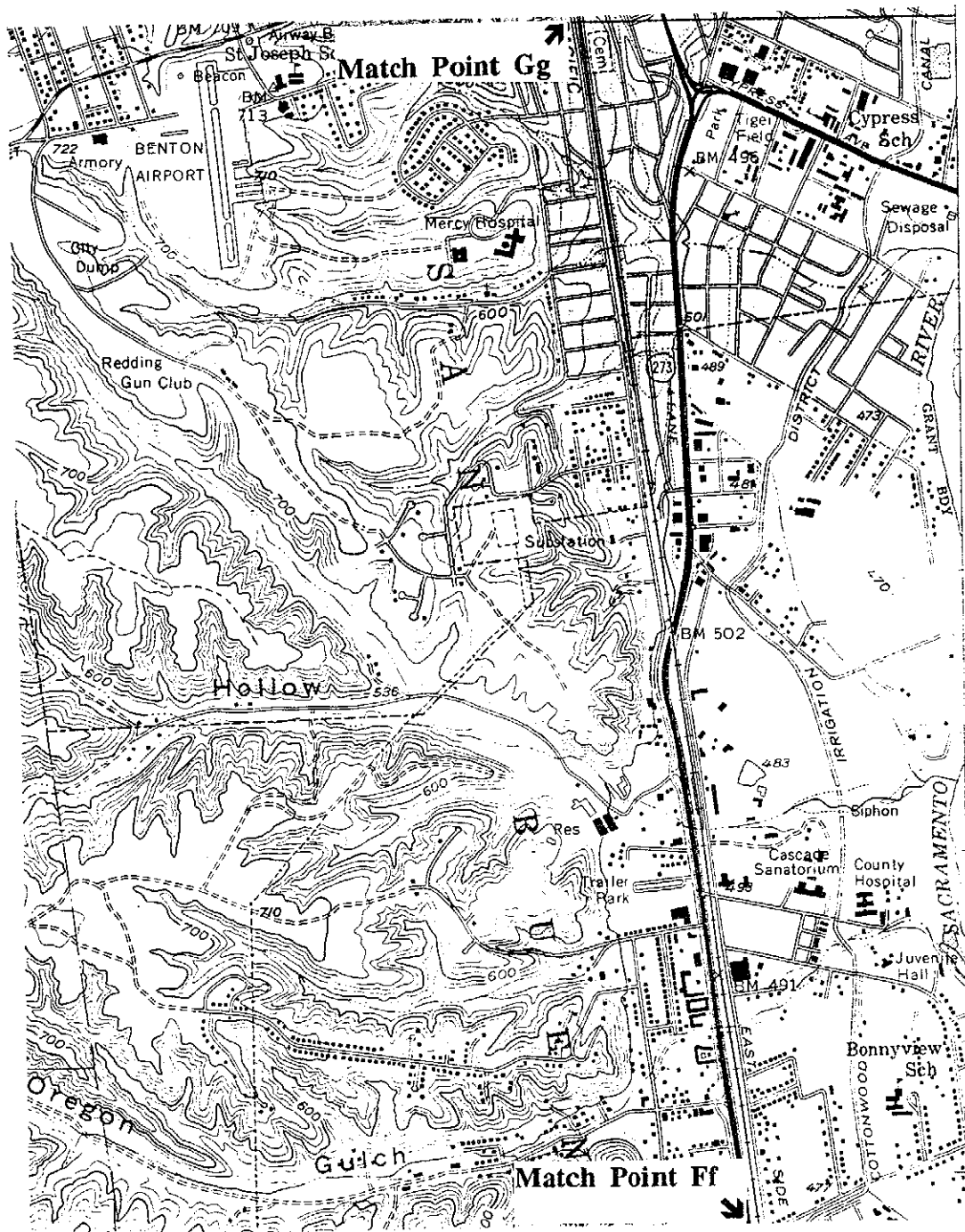
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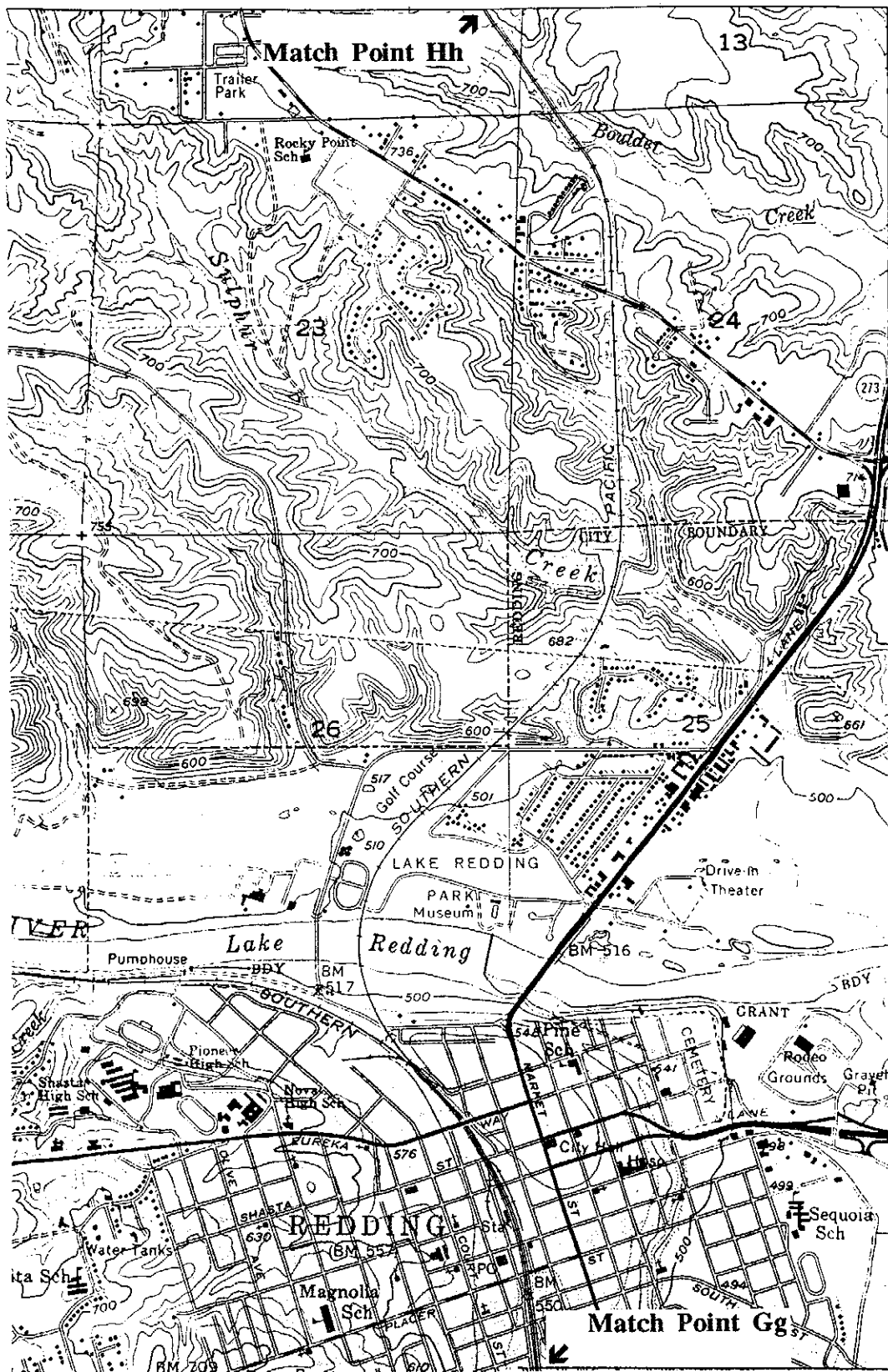
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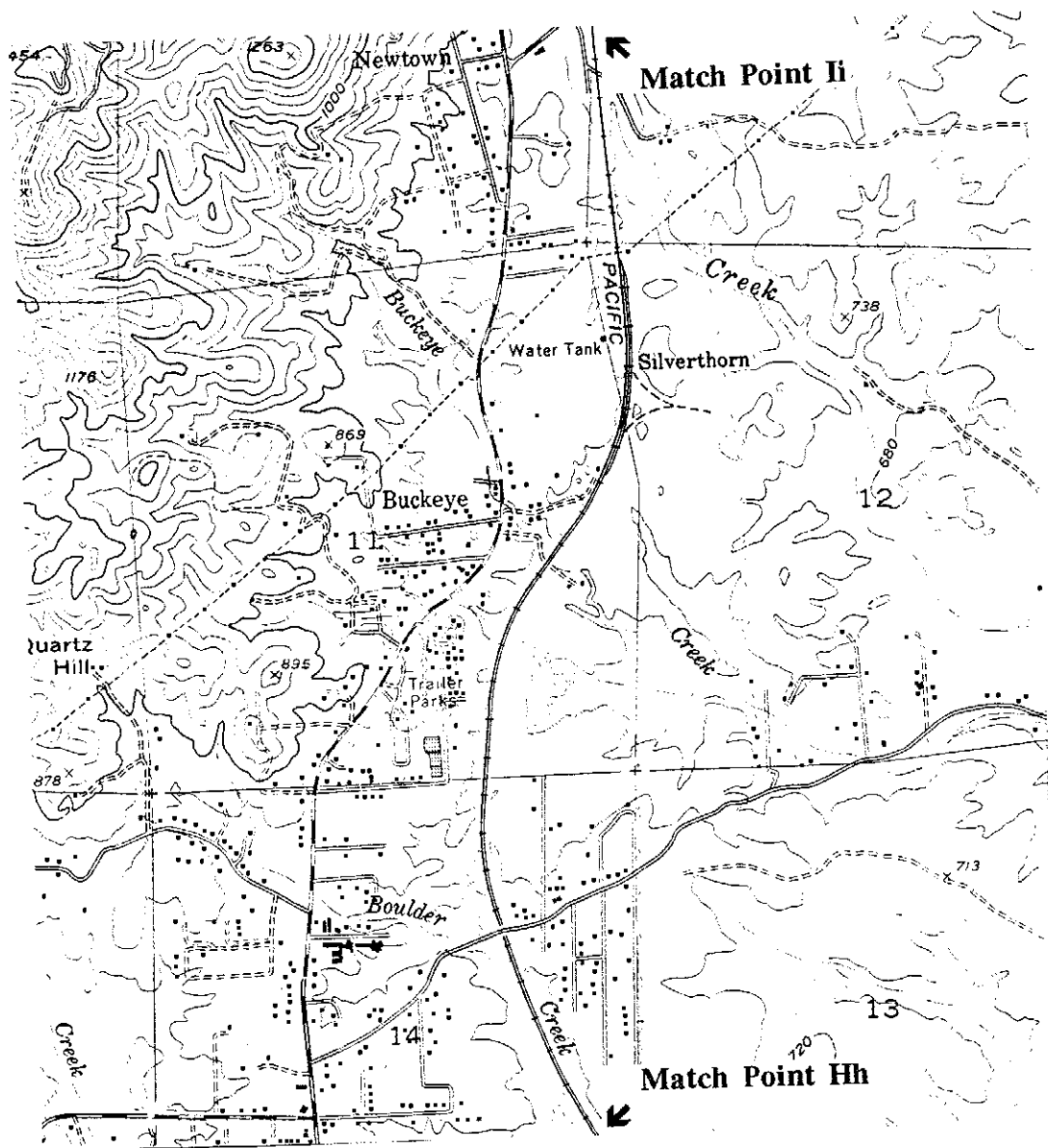
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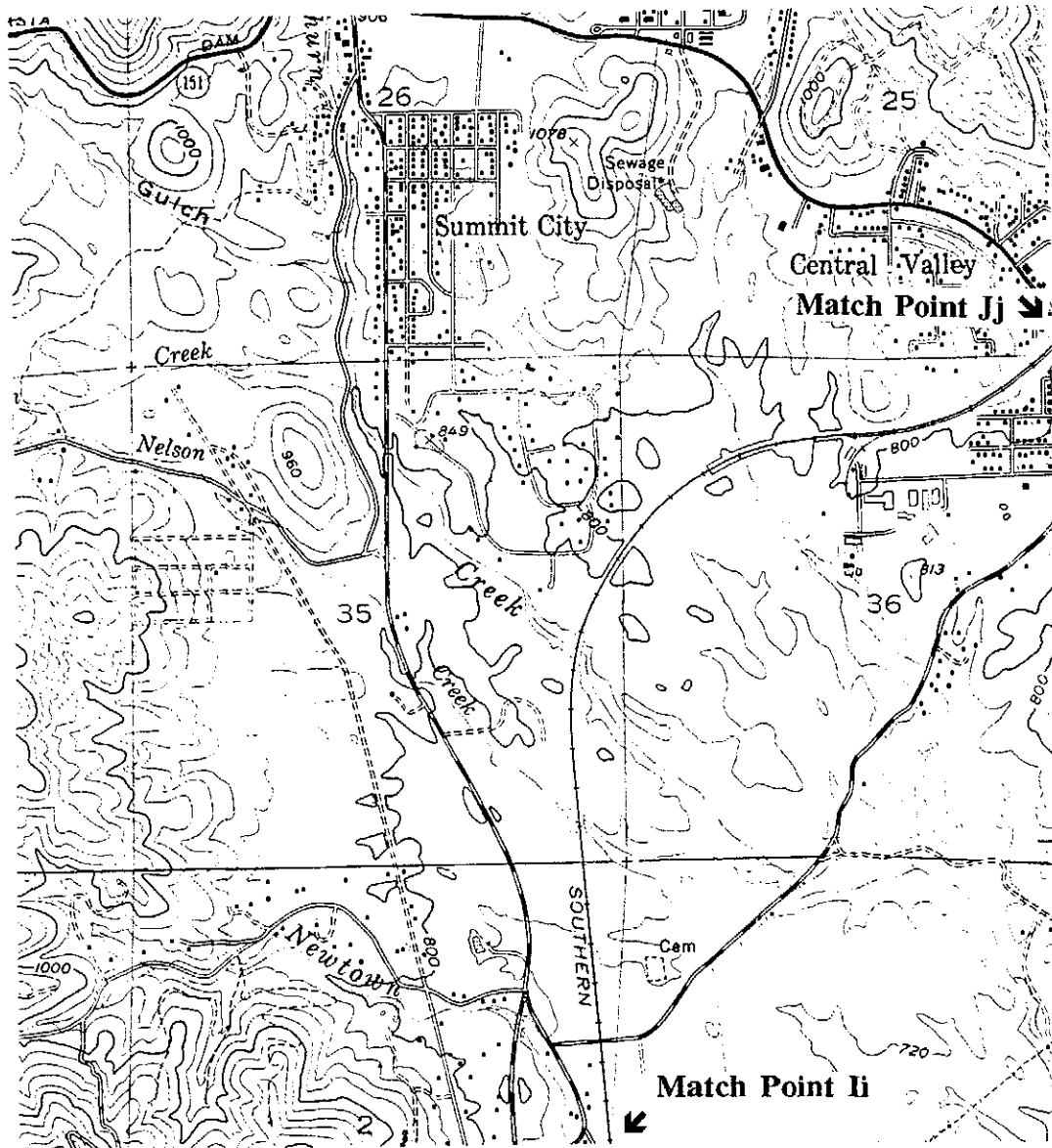
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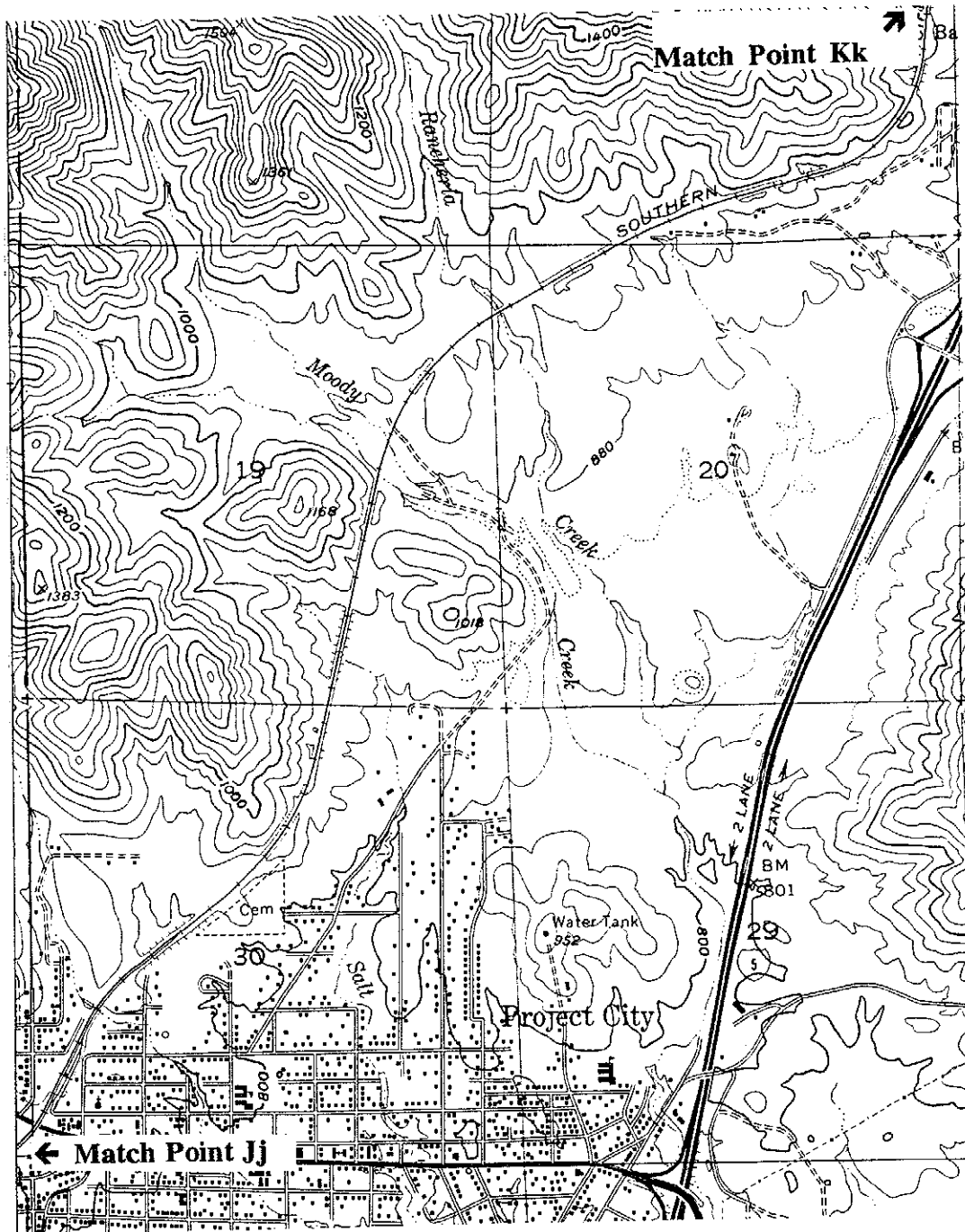
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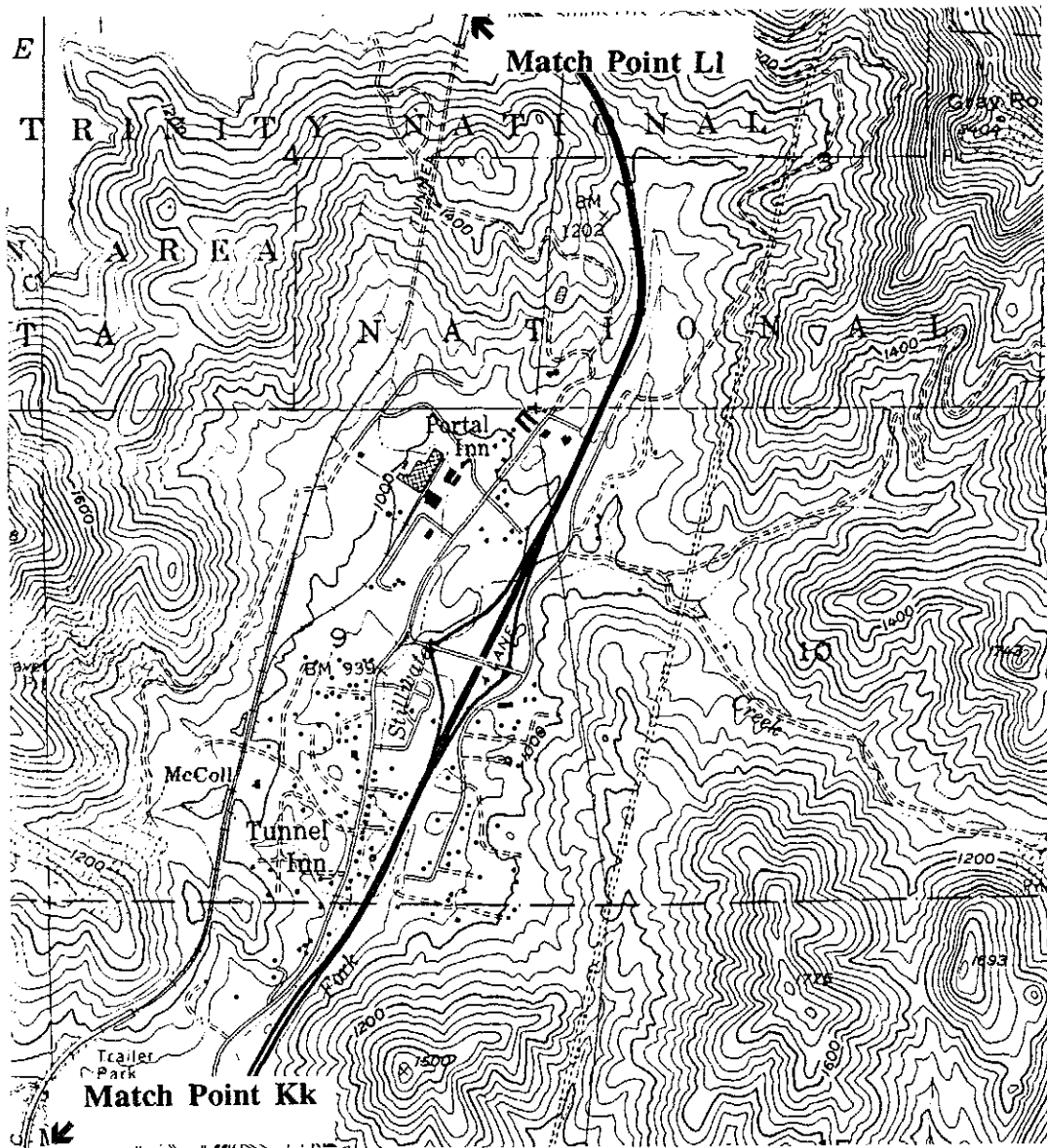
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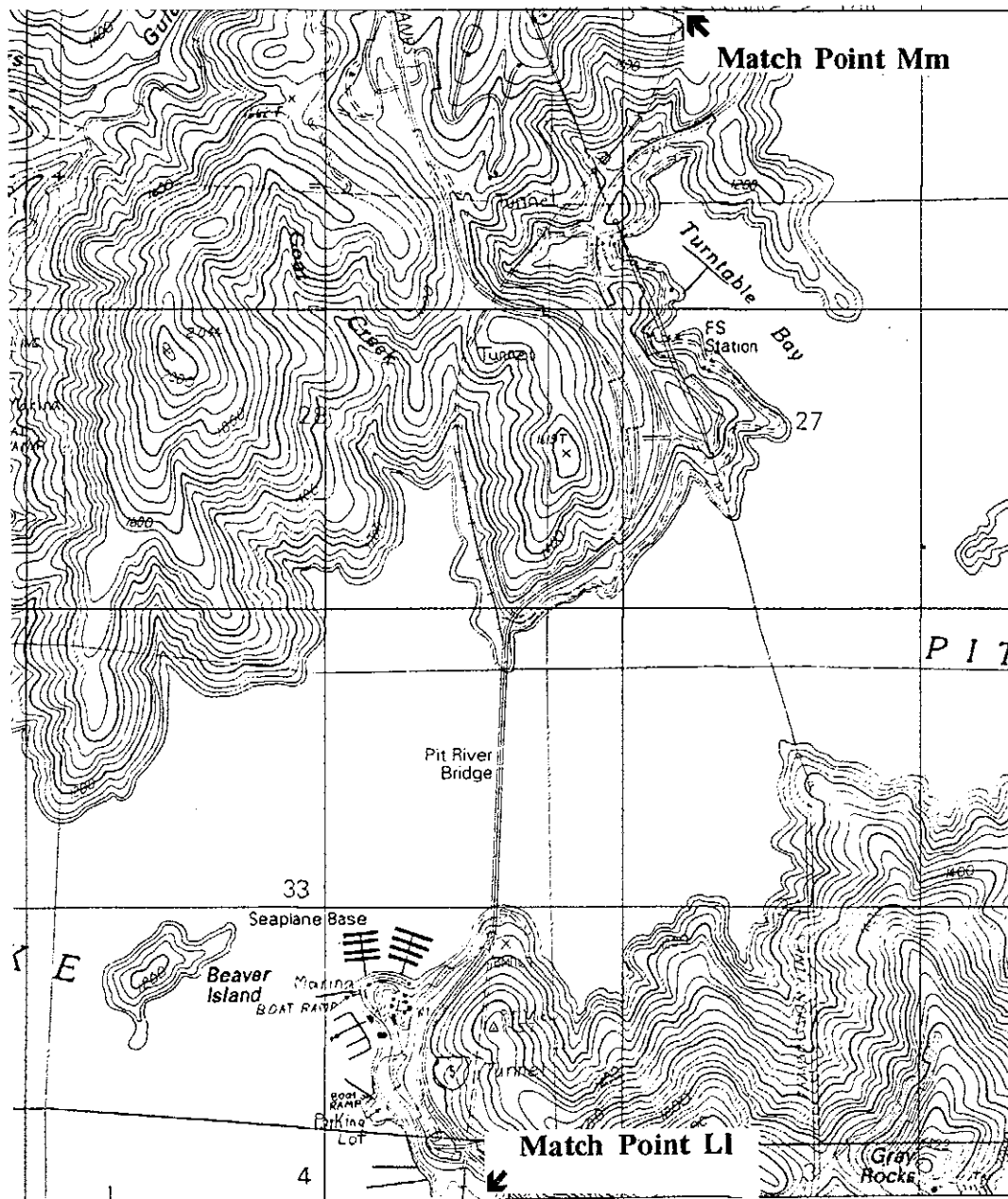
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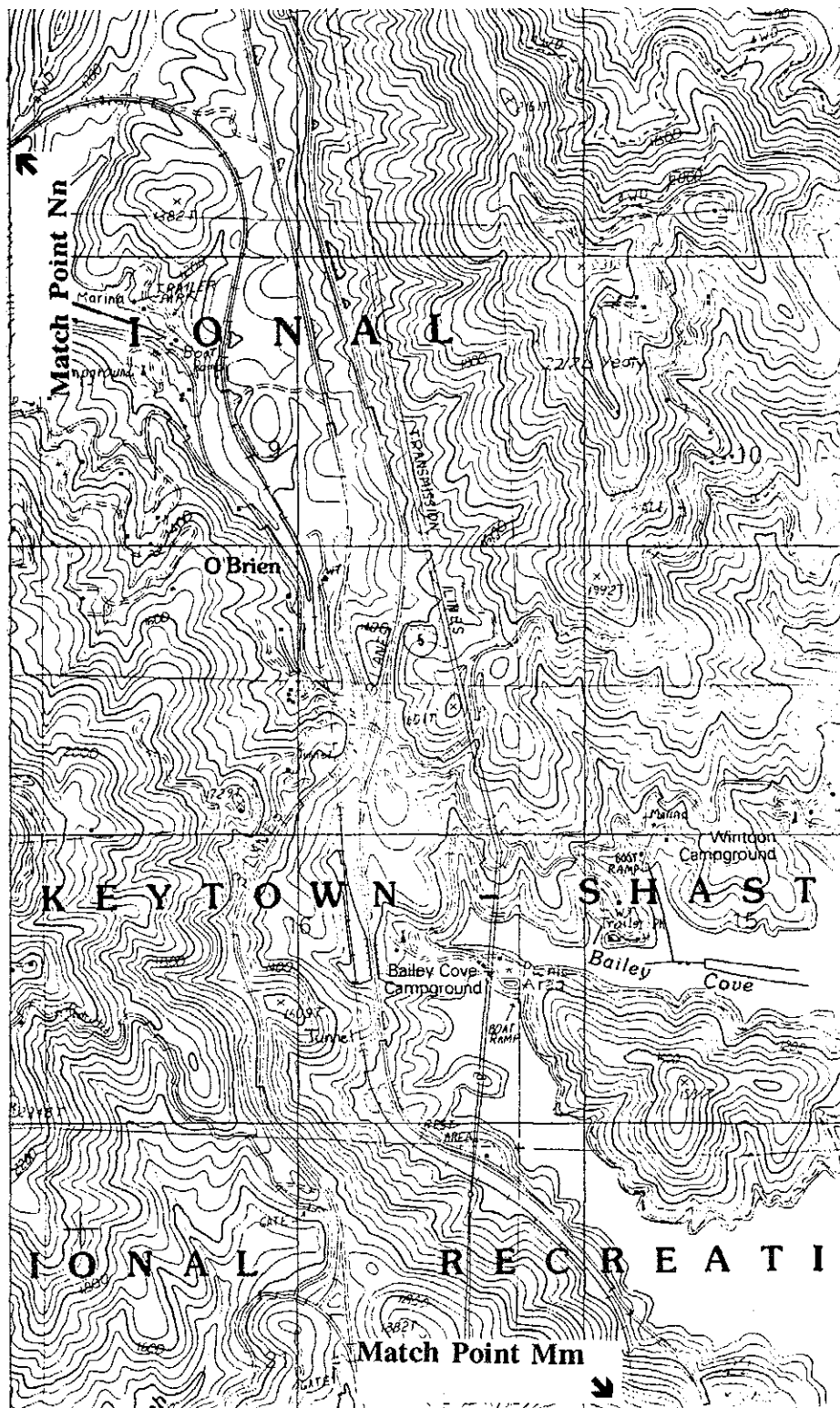
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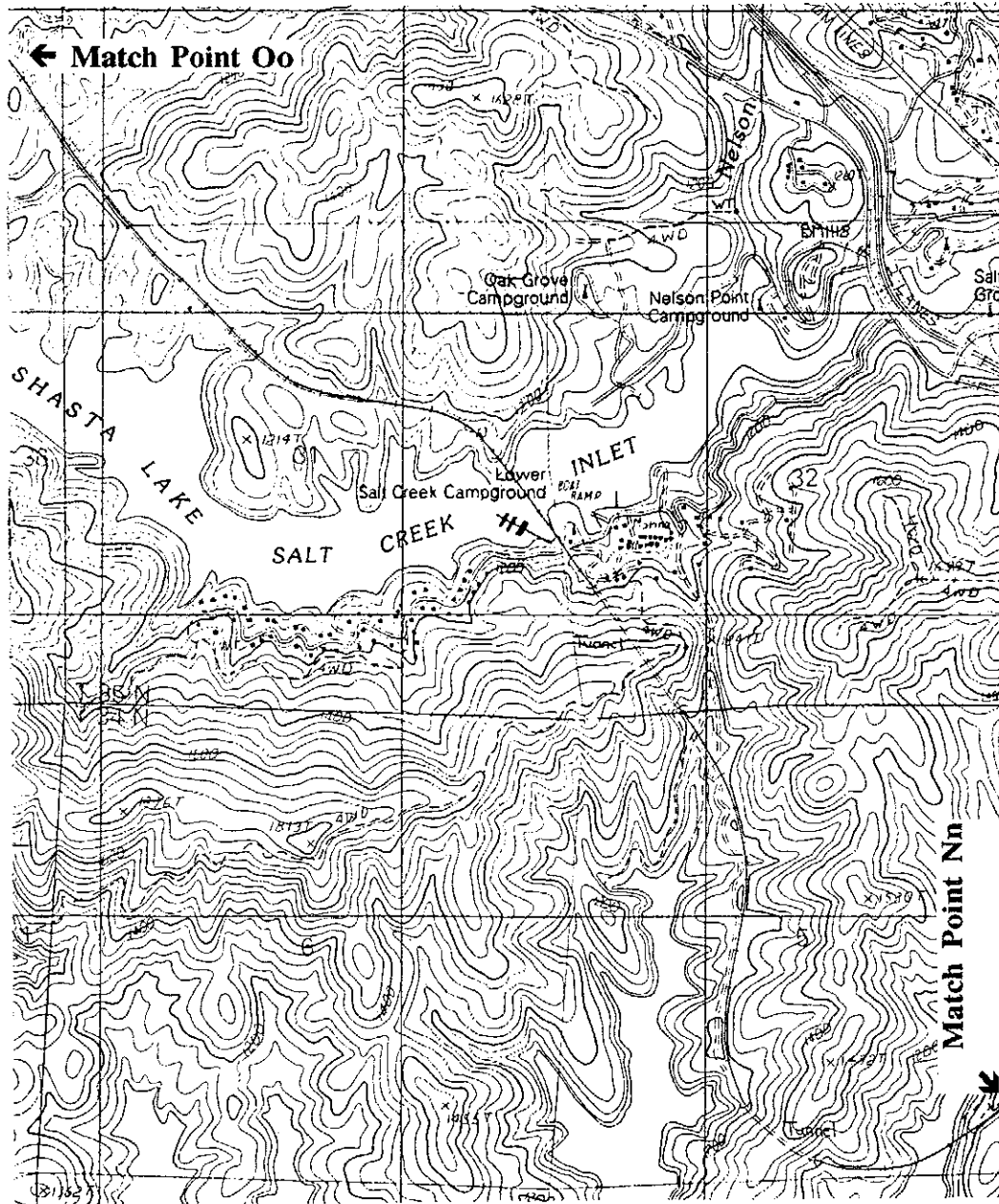
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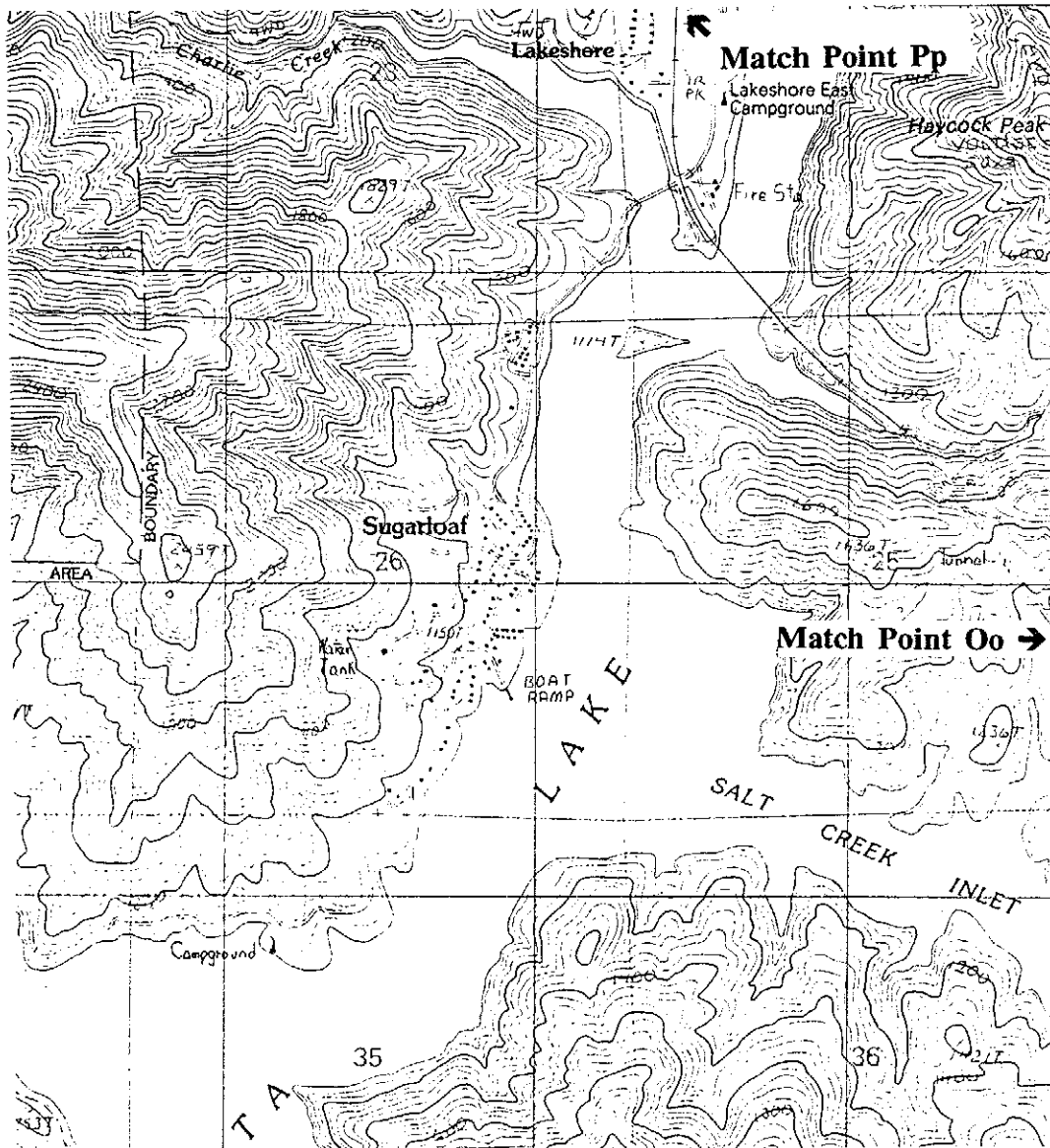
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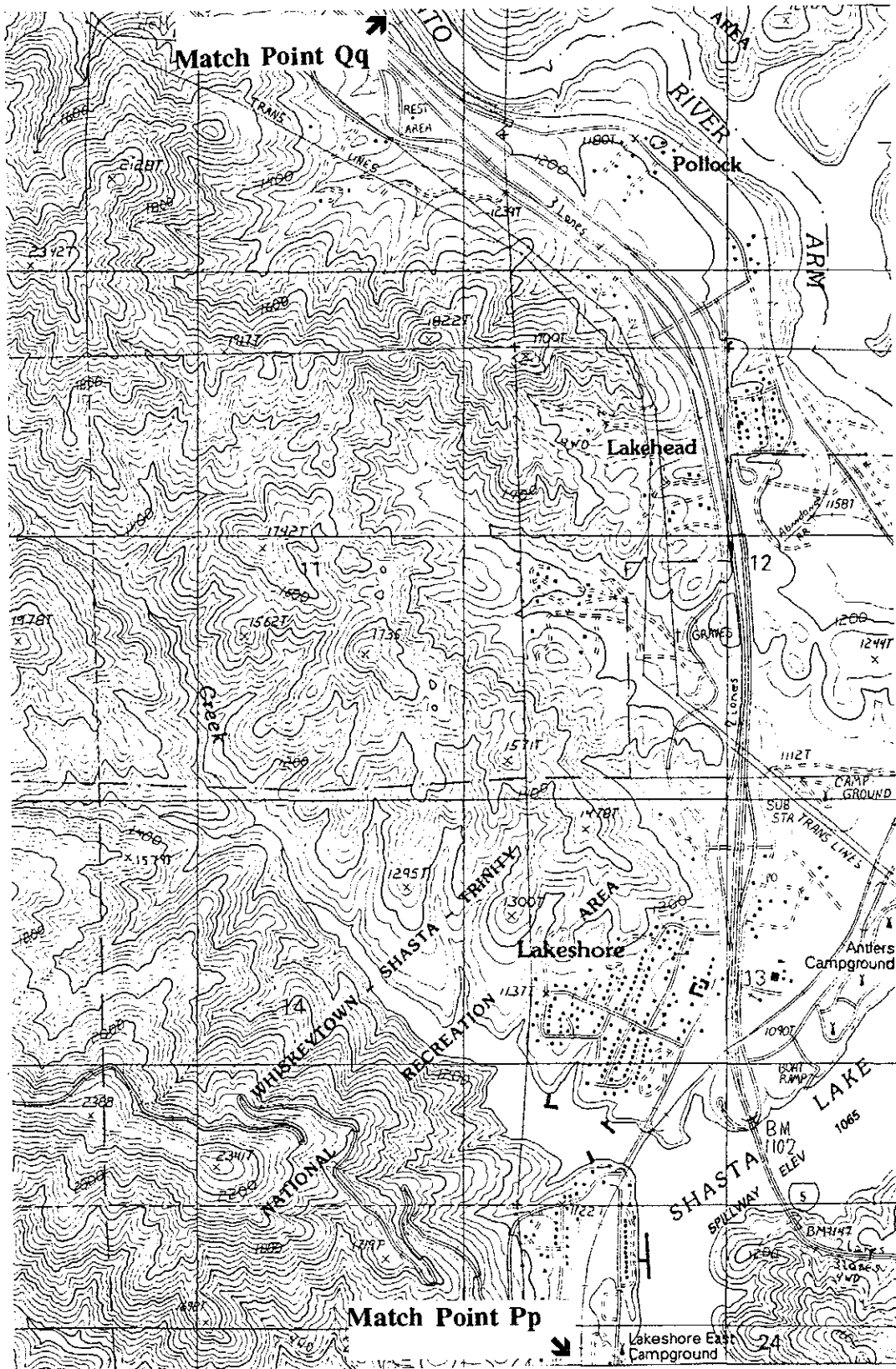
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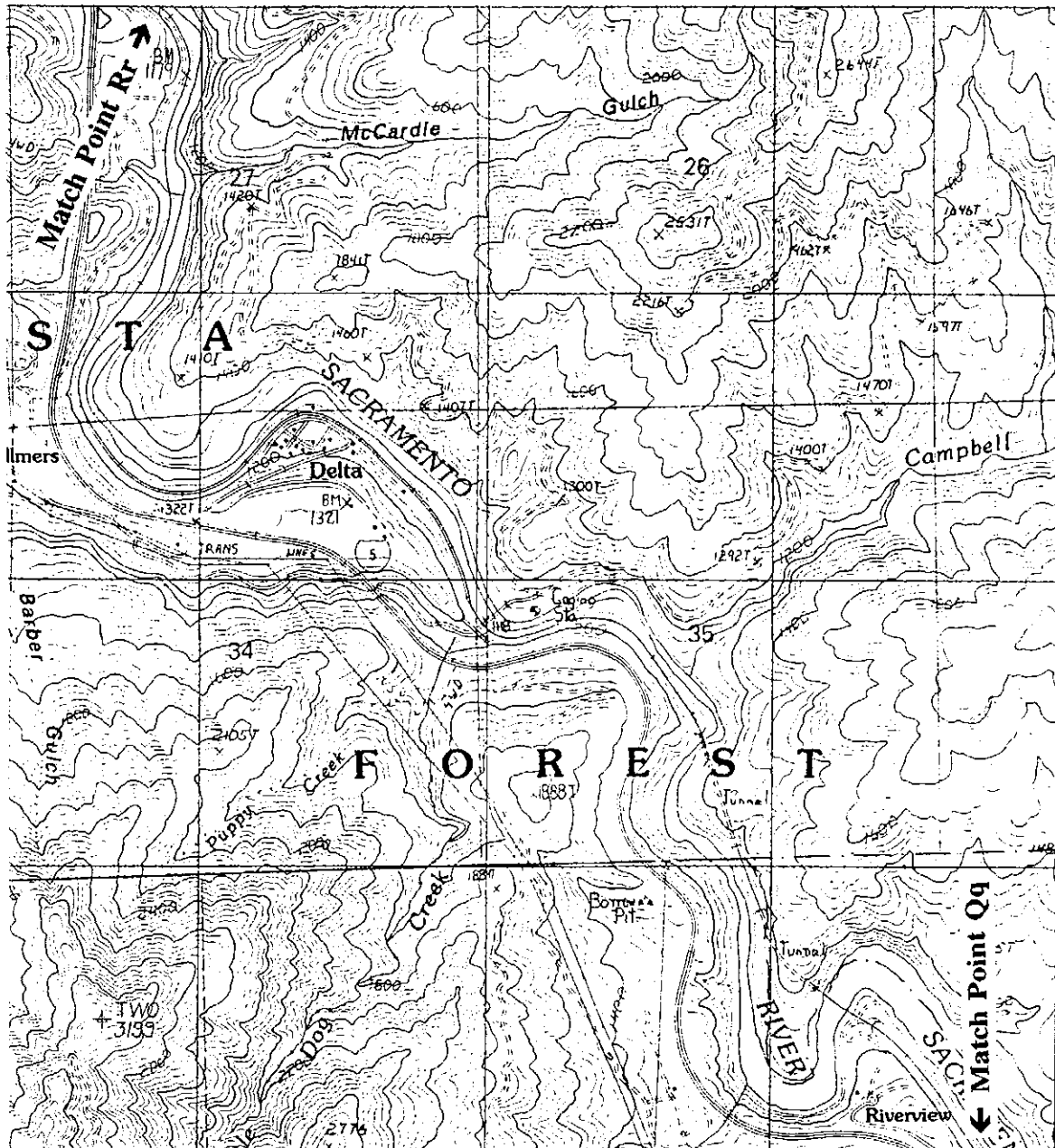
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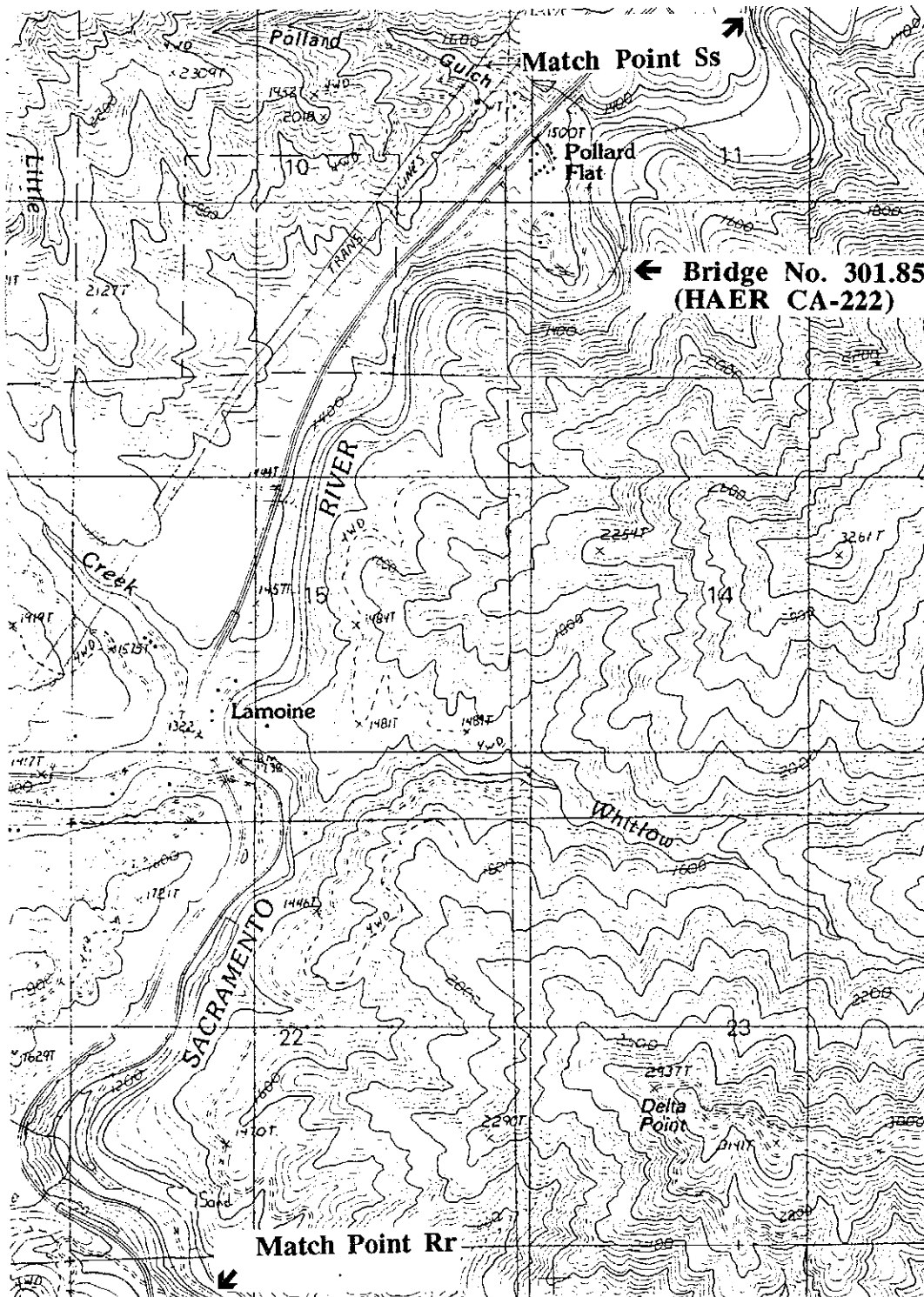
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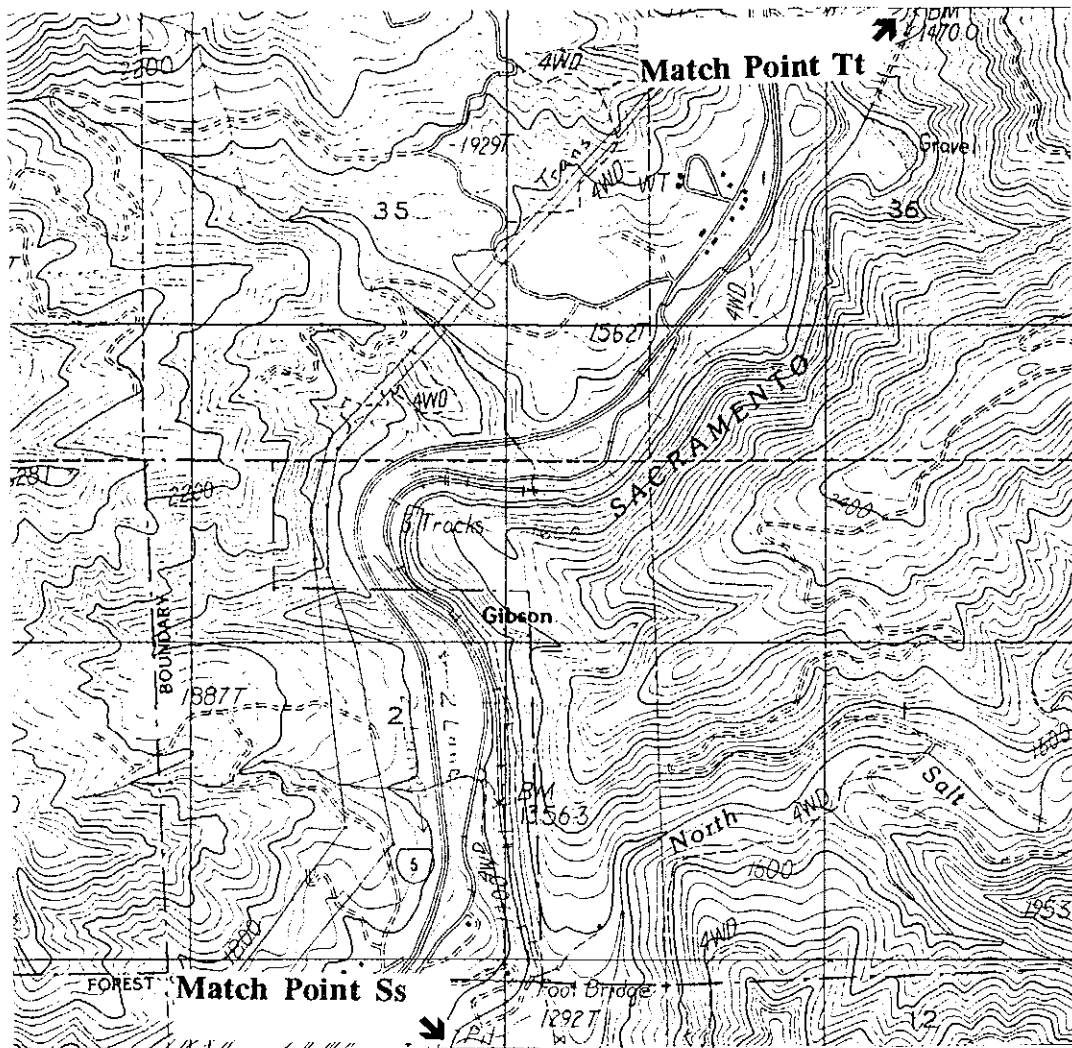
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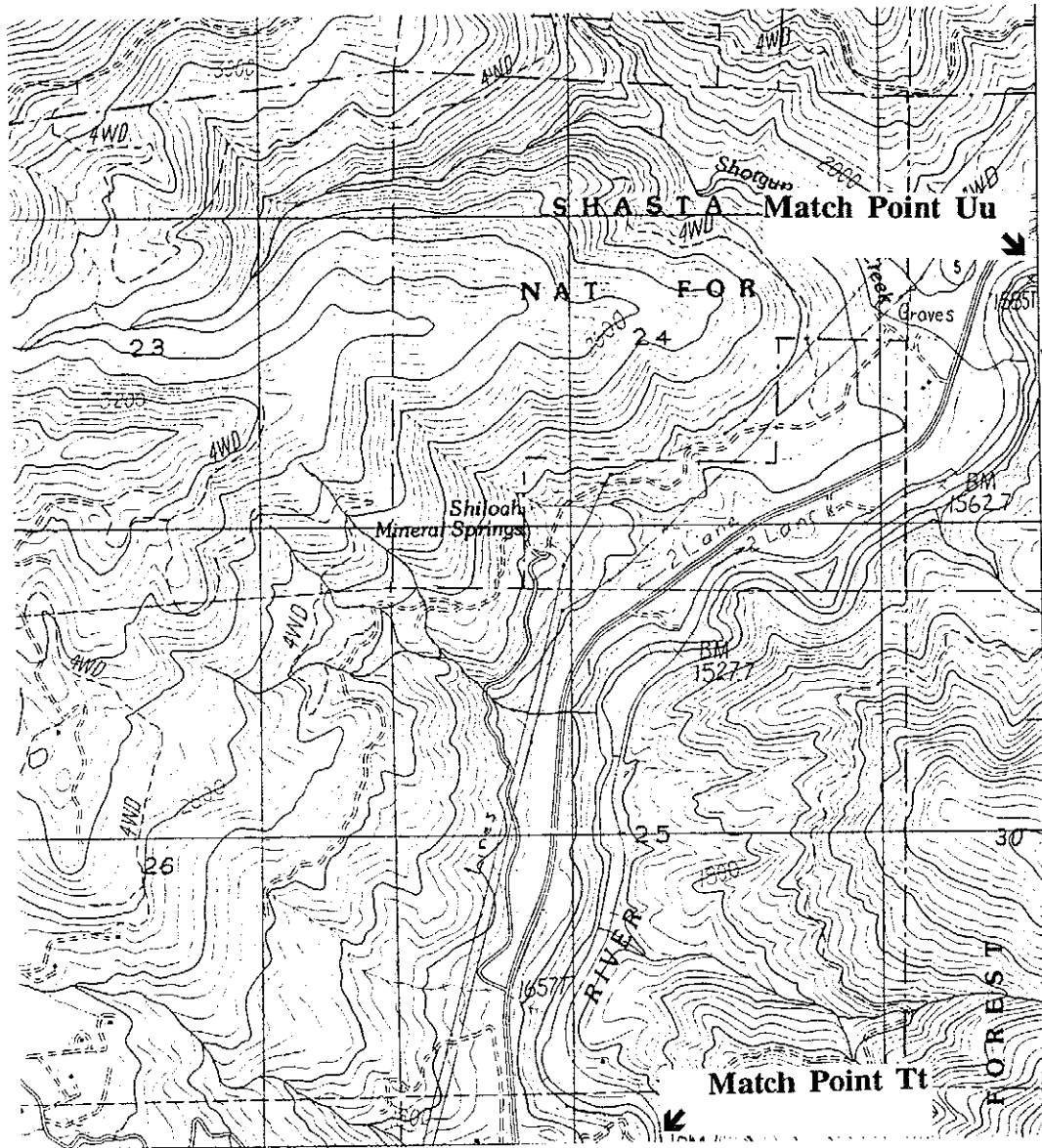
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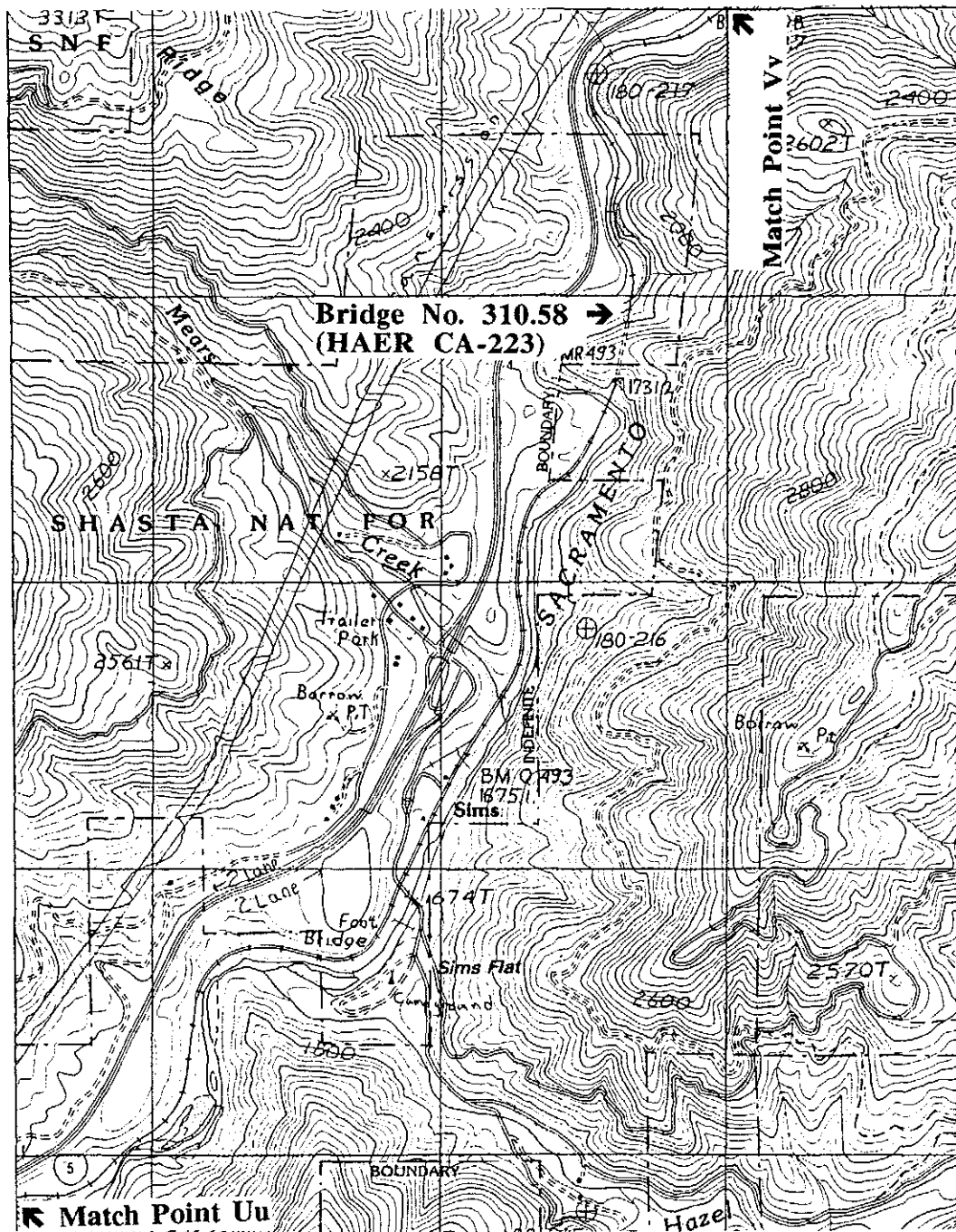
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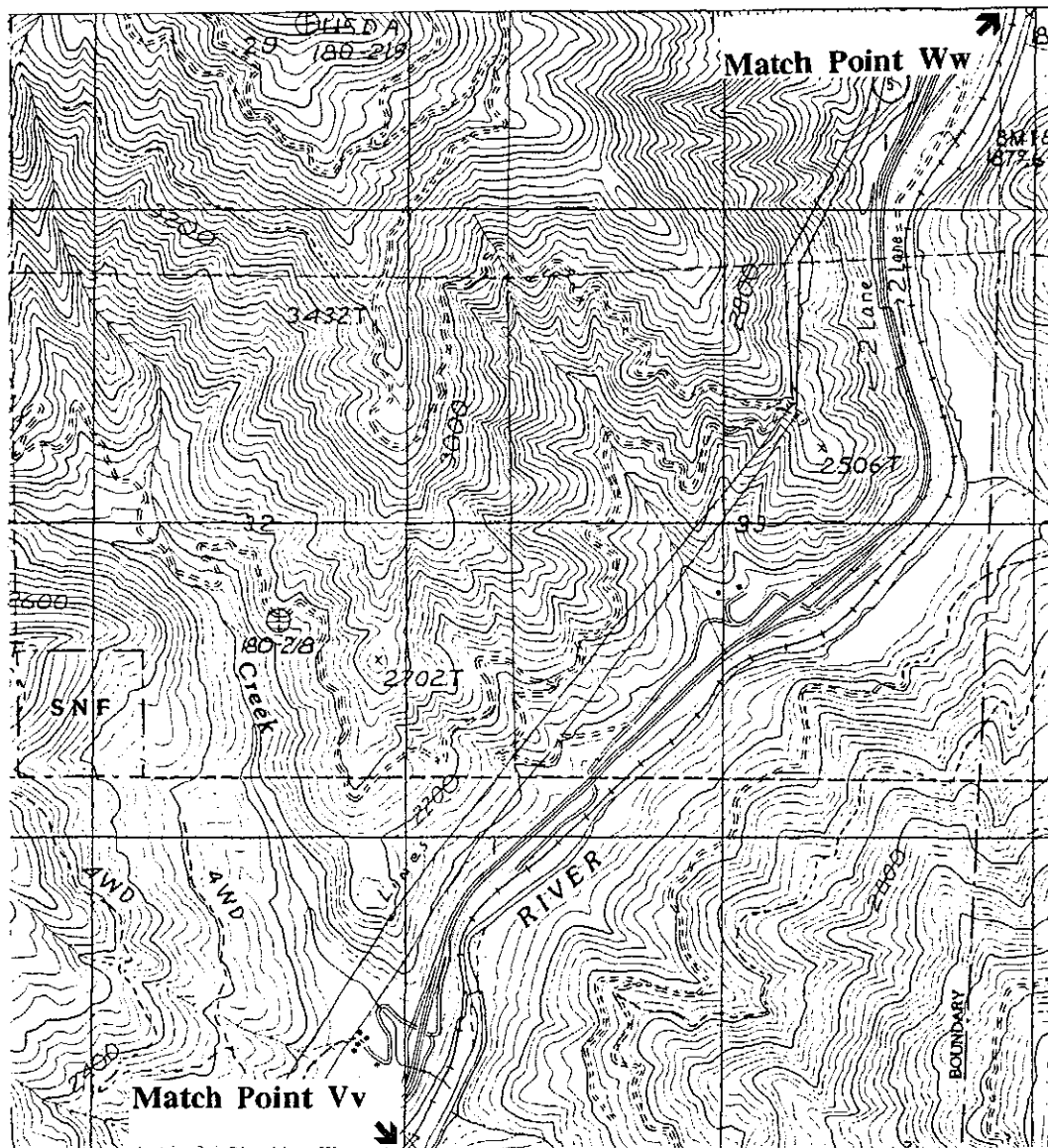
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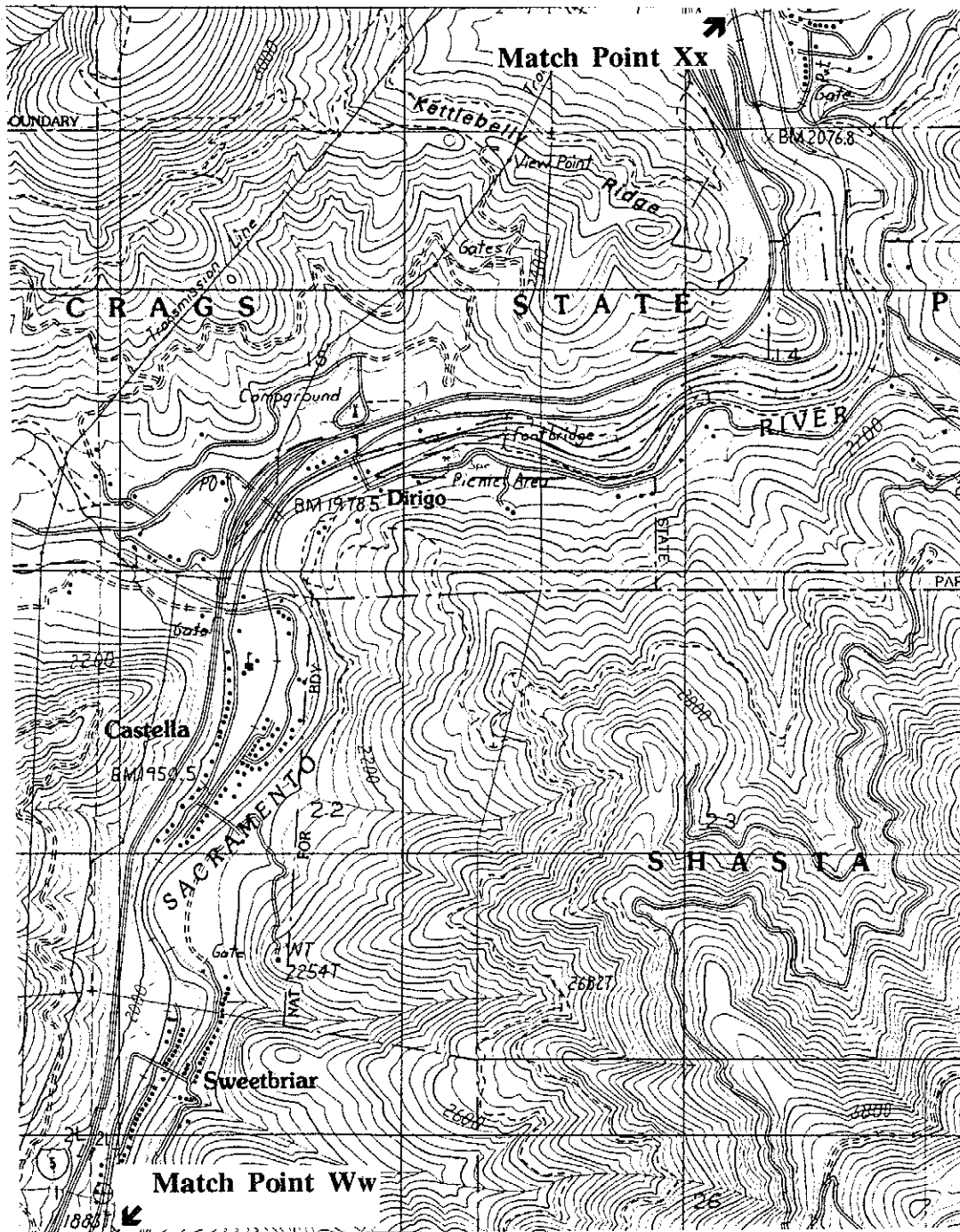
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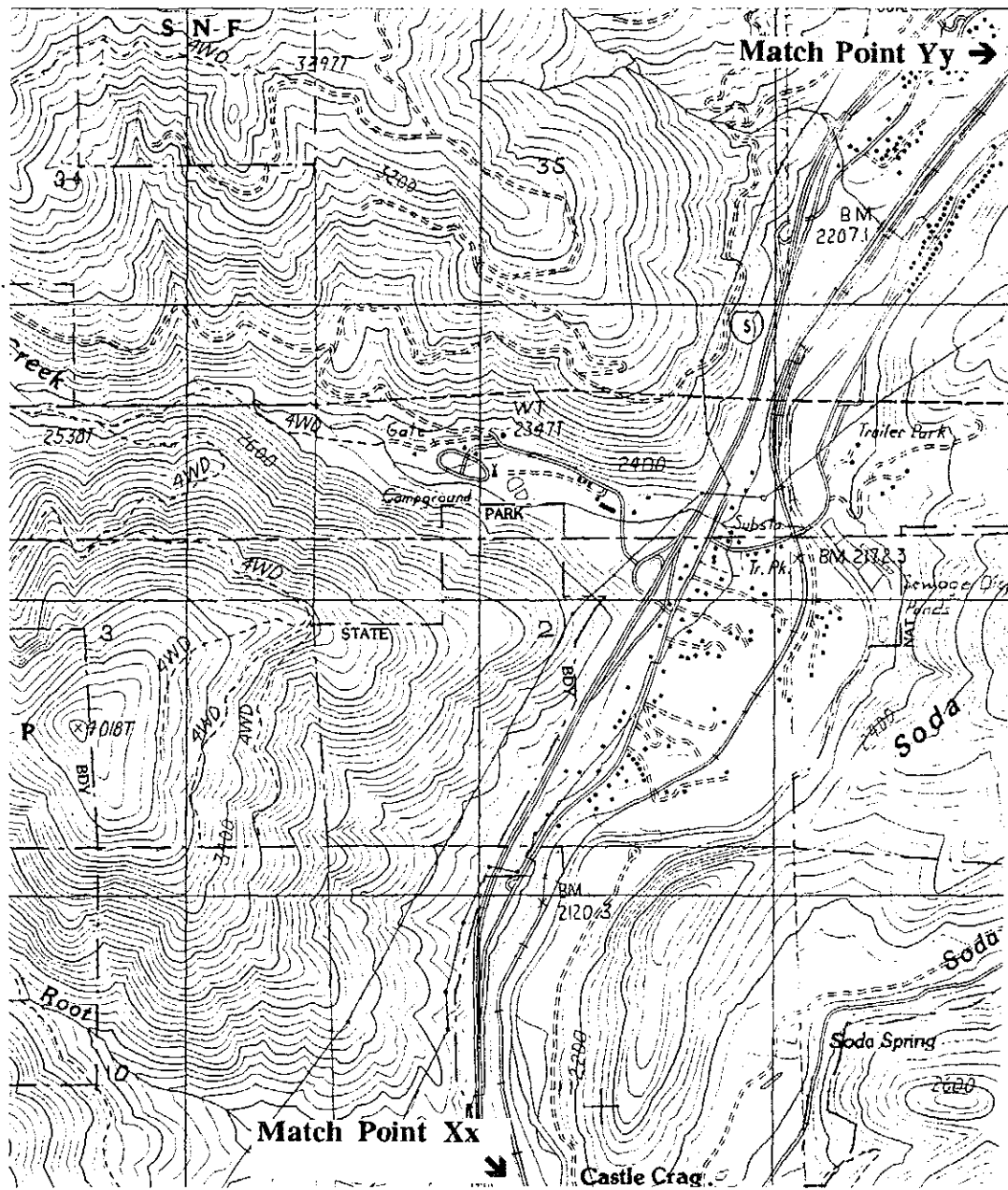
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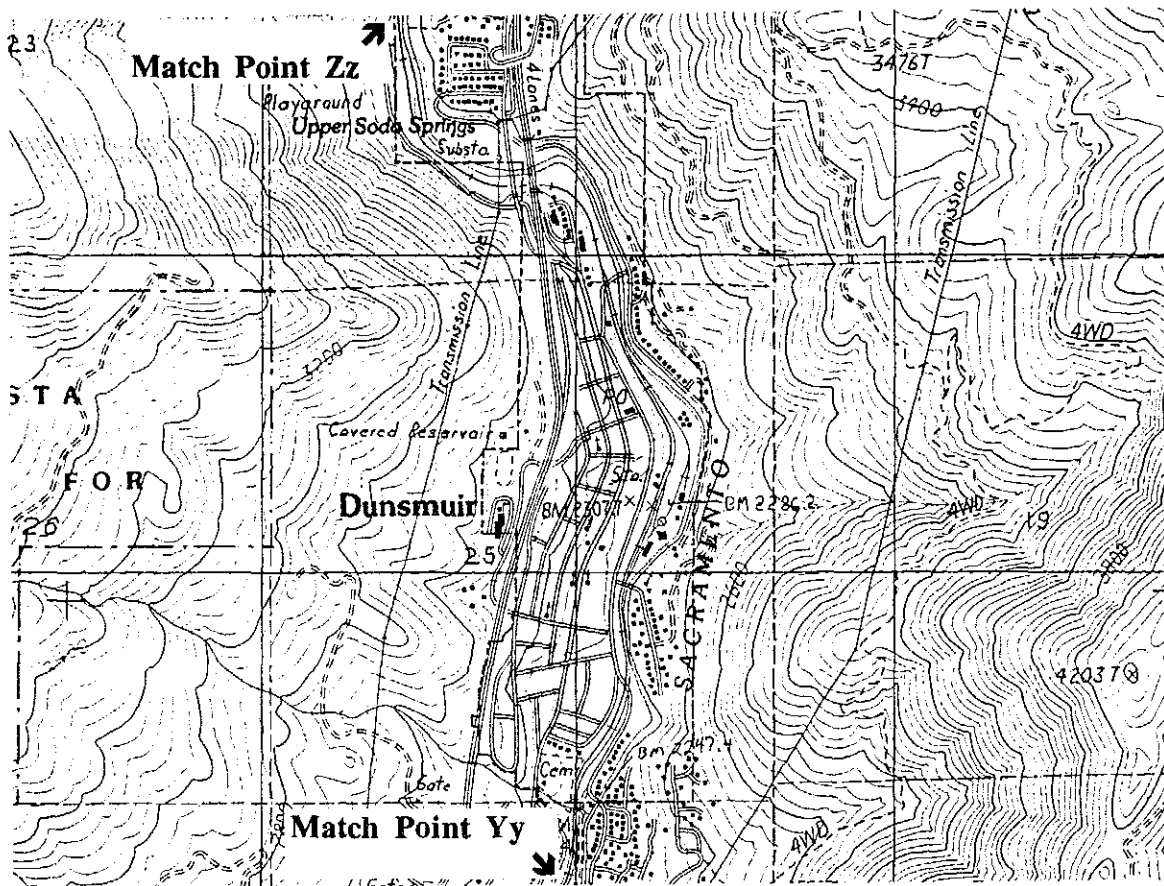
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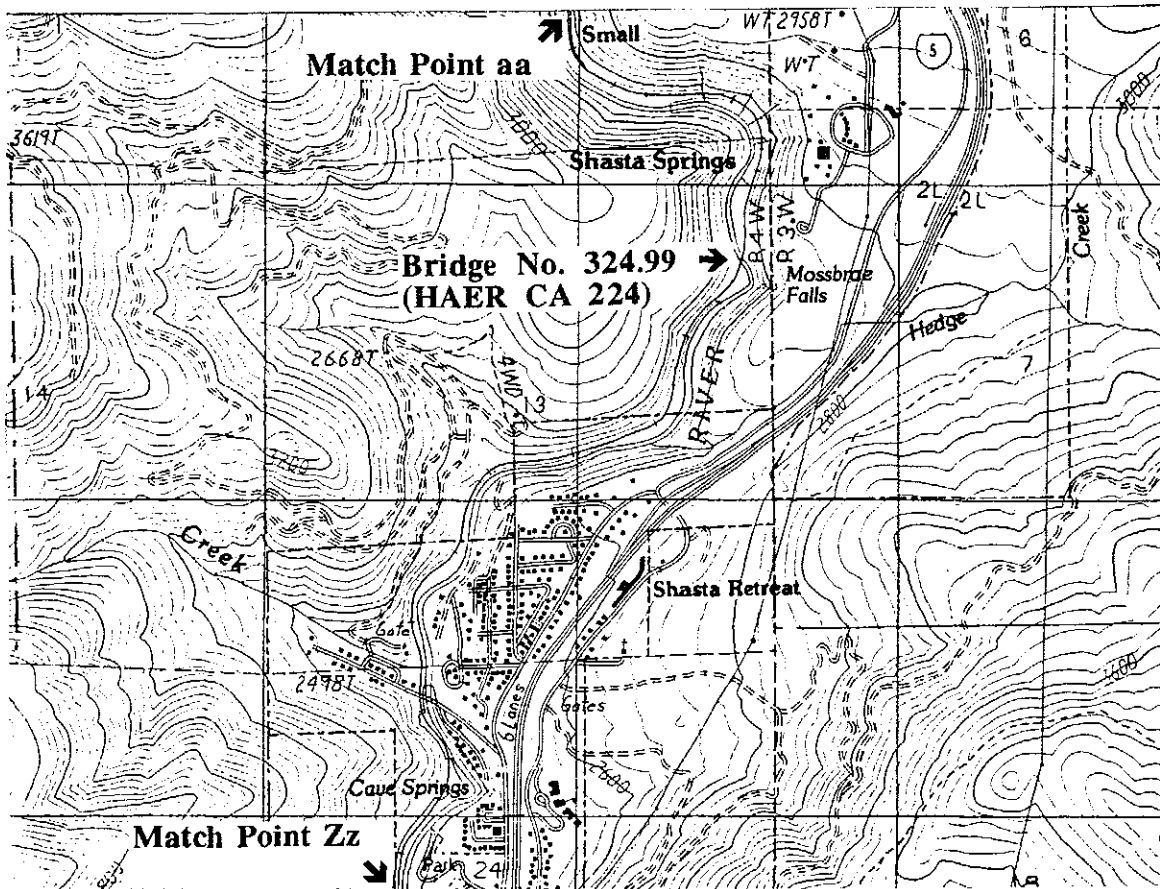
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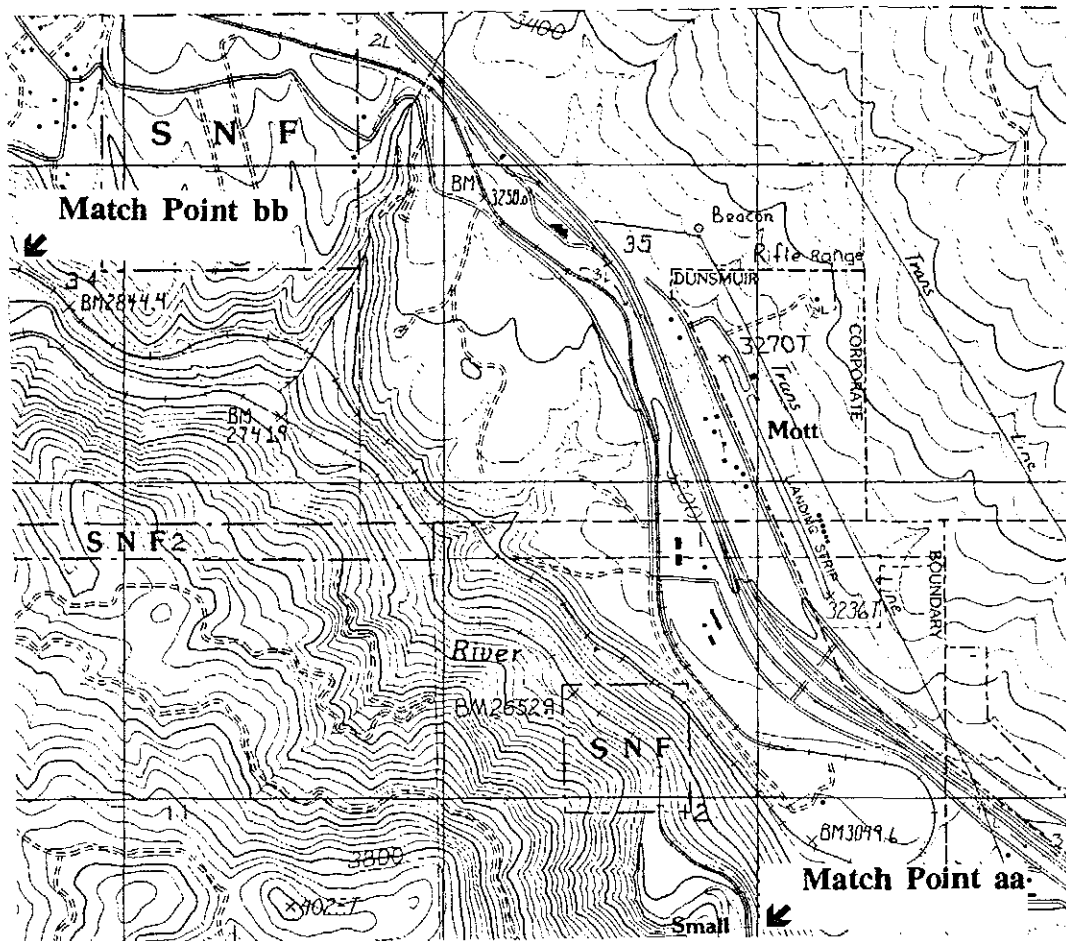
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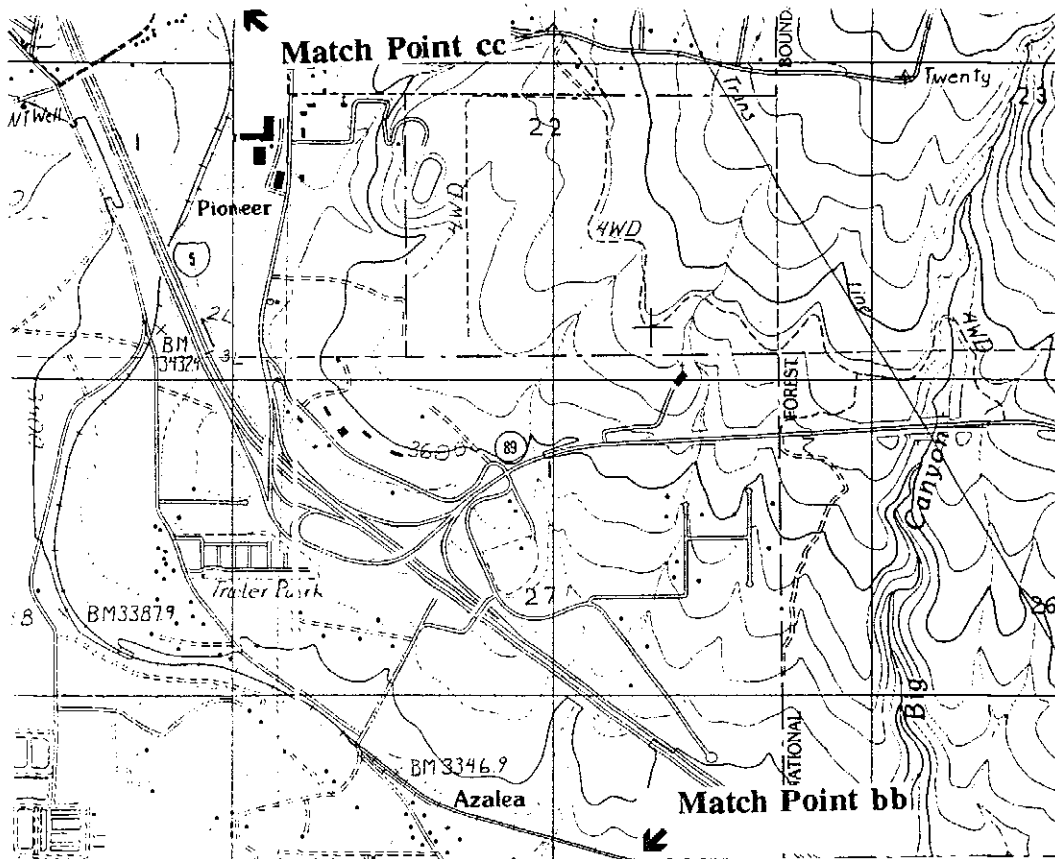
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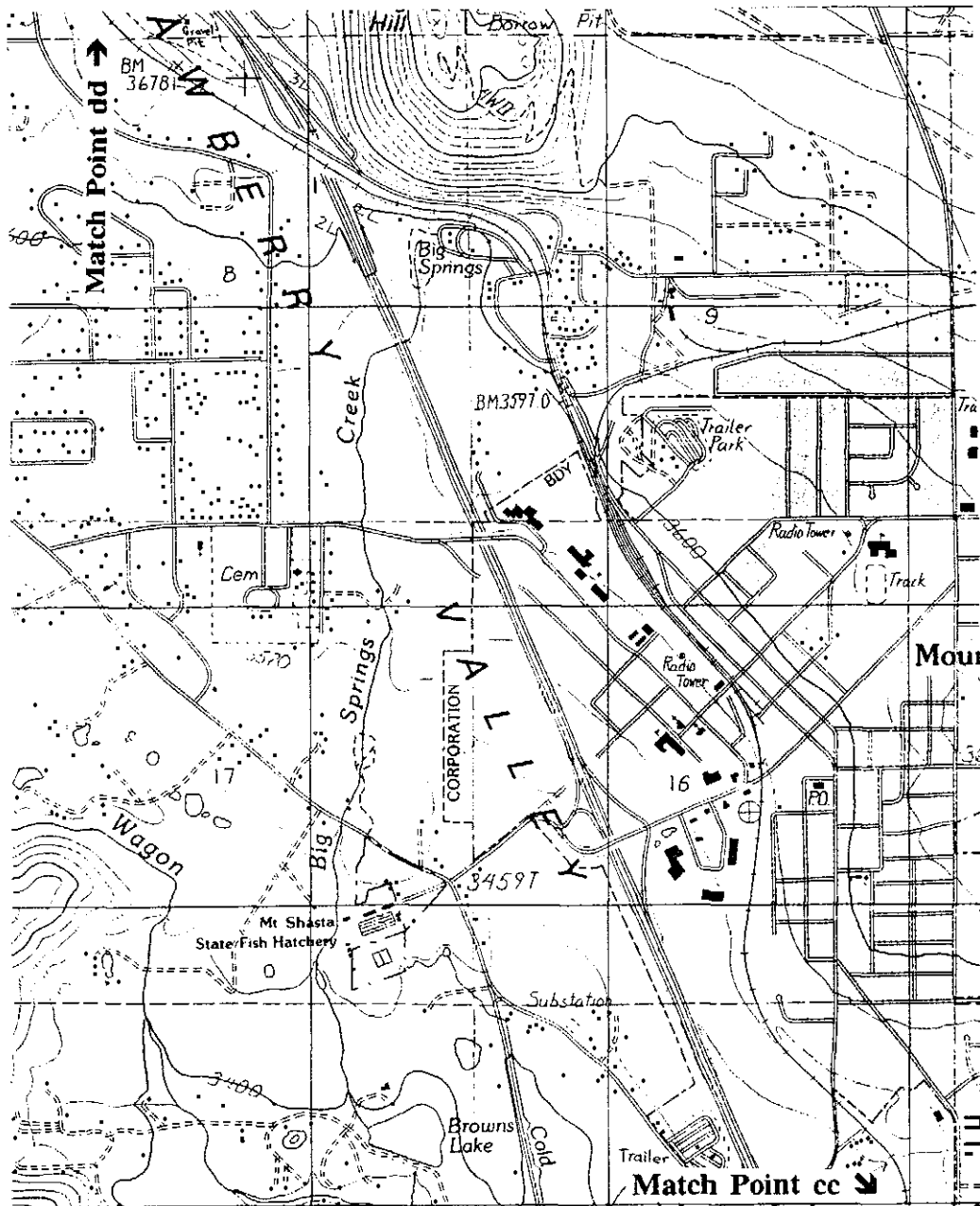
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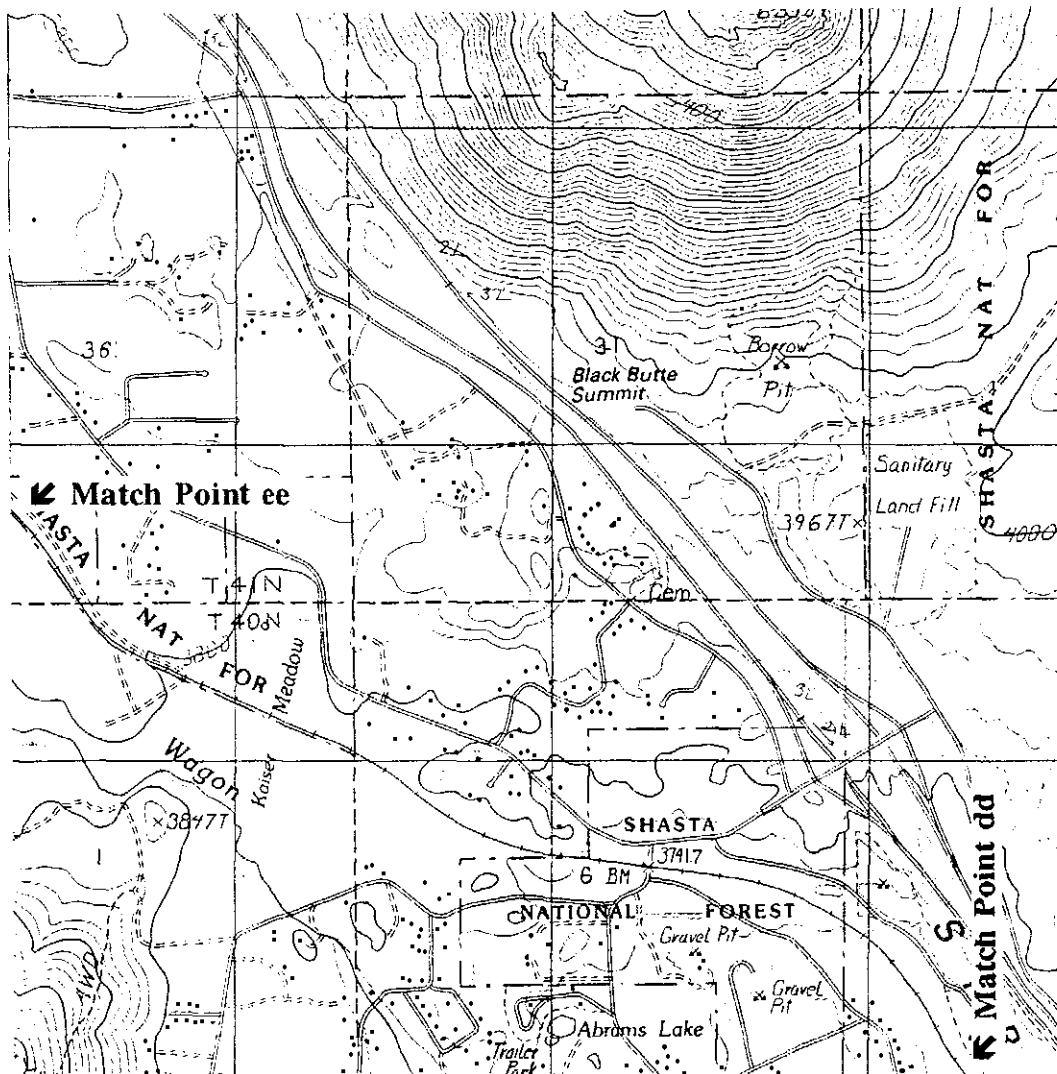
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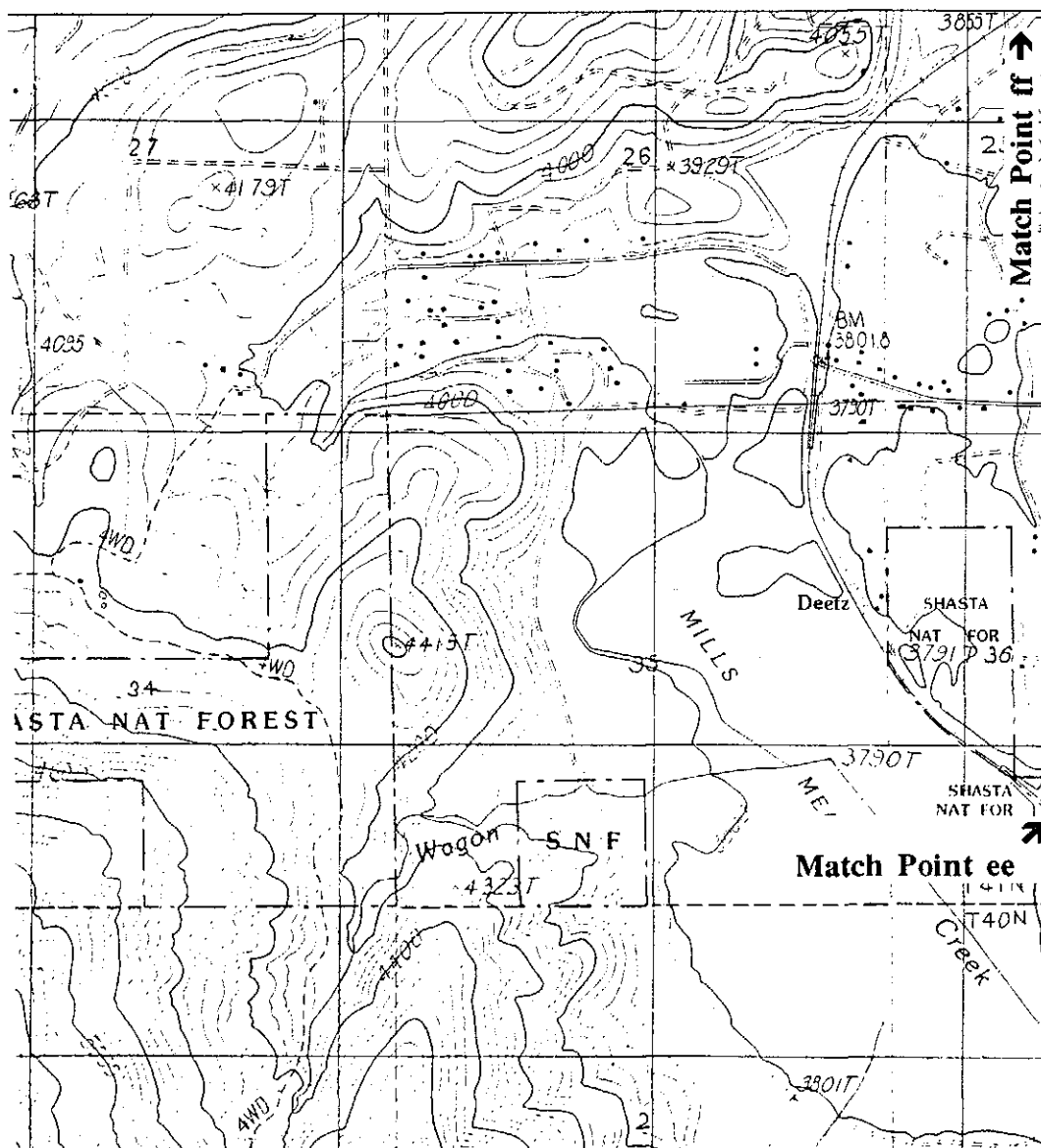
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